

United Republic of Tanzania

NATIONAL SAMPLE CENSUS OF AGRICULTURE
2002/2003

Volume Vb: REGIONAL REPORT: **ARUSHA REGION**



Cattle Rearing



Fish Harvesting



Eggs Production



Maize Planting



Paddy Growing



Hand Cultivation



Indigenous Chicken



Irrigation Practice



Orange Marketing



Cassava Planting



Goat Rearing



United Republic of Tanzania



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OF AGRICULTURE
2002/2003**

VOLUME Va: REGIONAL REPORT: ARUSHA REGION

*National Bureau of Statistics, Ministry of agriculture and Food Security,
Ministry of Water and Livestock Development, Ministry of Cooperatives and Marketing,
Presidents Office, Regional Administration and Local Government,
Ministry of Finance and Economic Affairs – Zanzibar*

December 2007

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ACRONYMS

<i>ASDP</i>	<i>Agricultural Sector Development Project</i>
<i>CSPro</i>	<i>Census and Survey Processing Program</i>
<i>DFID</i>	<i>Department For International Development</i>
<i>DIAS</i>	<i>District Integrated Agricultural Survey</i>
<i>DS</i>	<i>District Supervisor</i>
<i>EAS</i>	<i>Expanded Agricultural Survey</i>
<i>EAs</i>	<i>Enumeration Areas</i>
<i>EU</i>	<i>European Union</i>
<i>FE</i>	<i>Field Enumerator</i>
<i>GDP</i>	<i>Gross Domestic Product</i>
<i>Ha</i>	<i>Hectares</i>
<i>IAS</i>	<i>Integrated Agricultural Survey</i>
<i>ICR</i>	<i>Intelligent Character Recognition</i>
<i>IEC</i>	<i>Information, Education and Communication</i>
<i>JICA</i>	<i>Japanese International Cooperation Agency</i>
<i>LRS</i>	<i>Long Rainy Season,</i>
<i>MAFS</i>	<i>Ministry of Agriculture and Food Security</i>
<i>MCM</i>	<i>Ministry of Co-operatives and Marketing</i>
<i>MWLD</i>	<i>Ministry of Water and Livestock Development</i>
<i>NBS</i>	<i>National Bureau of Statistics</i>
<i>NGO</i>	<i>Non Governmental Organization</i>
<i>NMS</i>	<i>National Master Sample</i>
<i>NSCA</i>	<i>National Sample Census of Agriculture</i>
<i>NSGRP</i>	<i>National Strategy for Growth and Reduction of Poverty</i>
<i>PORALG</i>	<i>President's Office, Regional Administration and Local Government</i>
<i>PPS</i>	<i>Probability Proportional to Size</i>
<i>PSU</i>	<i>Primary Sampling Unit</i>
<i>RAAS</i>	<i>Rapid Appraisal Agricultural Survey</i>
<i>RS</i>	<i>Regional Supervisor</i>
<i>RSM</i>	<i>Regional Statistical Manager</i>
<i>SAC</i>	<i>Scotts Agriculture Consultancy Ltd</i>
<i>SPSS</i>	<i>Statistical Package for Social Science</i>
<i>SRS</i>	<i>Short Rainy Season</i>
<i>TOT</i>	<i>Training of Trainers</i>
<i>ULG</i>	<i>Ultek Laurence Gould</i>
<i>UNDP</i>	<i>United Nations Development Programme</i>
<i>UNFAO</i>	<i>United Nations Food and Agriculture Organization</i>
<i>VPO</i>	<i>Vice President Office</i>

PREFACE

At the end of the 2002/03 Agriculture Year, the National Bureau of Statistics and the Office of the Chief Government Statistician in Zanzibar in collaboration with the Ministries of Agriculture and Food Security; Water and Livestock Development; Cooperatives and Marketing as well as the Presidents Office, Regional Administration and Local Government (PORALG) conducted the Agriculture Sample Census. This is the third Agriculture Census to be carried out in Tanzania, the first one was conducted in 1971/72, the second in 1993/94 and 1994/95 (during 1993/94 data on household characteristics and livestock count were collected and data on crop area and production in 1994/95).

It is considered that this census is one of the largest to be carried out in Africa and indeed in many other countries of the world. The census collected detailed data on crop production, crop marketing, crop storage, livestock production, fish farming, tree farming, access to infrastructures and services and poverty indicators.

In addition to this, the census was large in its coverage as it provides data that can be disaggregated at district level and thus allow comparisons with the 1998/99 District Integrated Agricultural Survey. The census covered smallholders in rural areas only and large scale farms. This report presents Tanga region data disaggregated to district level. It was very difficult to discuss all variables collected in a single report hence the analysis was based on the most important smallholder variables. The rest of the variables are found in the attached annex of table of results. The analysis in the report includes time series comparisons using data from the previous censuses and surveys.

The extensive nature of the census in relation to its scope and coverage is a result of the increasing demand for more detailed information to assist in the proper planning of this sector and in the administrative decentralization of planning to district level. It is hoped that this report will provide new insights for planners, policy makers, researchers and others involved in the agricultural sector in order to improve the prevailing conditions faced by crop producers and livestock keepers in the country.

On behalf of the Government of Tanzania, I wish to express my appreciation for the financial support provided by the development partners, in particular, the European Union as well as DFID, UNDP, Japanese Government, JICA and others who contributed through the pool fund mechanism.

Finally, my appreciation goes to all those who in one-way or the other contributed to the success of the survey. In particular, I would also like to mention the enormous effort made by the Planning Group composed of professionals from the Agriculture Statistics Department of the National Bureau of Statistics (NBS), the Office of the Chief Government Statistician in Zanzibar (OCGS) and the Statistics Unit of the Ministry of Agriculture and Food Security (MAFS) with technical assistance provided by Ultec Lawrence Gould (ULG), Scotts Agriculture Consultancy Ltd and the Food and Agriculture Organisation of the United Nations (FAO).

Additionally, I would like to extend my appreciation to all professional staff of the National Bureau of Statistics, the sector Ministries of Agriculture and PORALG, the Consultants as well as Regional and District Supervisors and field enumerators for their commendable work. Certainly without their dedication, the census would not have been such a success.

Albina A. Chuwa
The Director General
National Bureau of Statistics

EXECUTIVE SUMMARY

The executive summary highlights the main survey results obtained during the National Sample Census of Agriculture 2002/03. This report covers small-scale agriculture households in rural areas of Tanga region who were selected using statistical sampling techniques. The results in the report do not cover urban areas and large-scale farmers.

The highlights describe the important findings in relation to agricultural production, productivity, husbandry, access to resources, levels of involvement in agricultural related activities and poverty in Tanga region activities indicators for one to get an overview, at regional level, of the rural agricultural households and their levels of involvement in agricultural related activities.

i) Household Characteristics

The number of agricultural households in Tanga region were 265,198 out of which 178,406 (67.3%) were involved in growing crops only, 1,477 (0.6%) rearing livestock only, 194 (0.1%) were pastoralist, and 85,121 (32%) were involved in crop production as well as livestock keeping. In summary, Tanga region had 263,527 households involved in crop production and 86,792 involved in livestock production.

Most of the agricultural households ranked annual crop farming as an activity that provides most of their cash income followed by off farm income, fishing/hunting tree/forest resources, permanent crop farming, livestock keeping/herding and remittances.

The region has a literacy rate of 70 percent. The highest literacy rate is in Pangani district (70%) followed by Tanga district (68%) and Lushoto district (65%). Kilindi and Handeni districts have the lowest literacy rates of 44 and 53 percent respectively. The literacy rate for the heads of households in the region was 73.6 percent.

The number of heads of agricultural households with formal education in Tanga region was 191,081 (72%), those without formal education were 70,819 (27%) and those with only adult education were 3,298 (1%). The majority of heads of agricultural households (69%) had primary level education whereas only 3 percent had post primary education.

In Tanga region 46,351 household members (76%) were involved in one off-farm income generating activity, 34,169 (18%) involved in two off-farm income generating activities and 12,023 (6%) involved in more than two off-farm income generating activities.

ii) Crop Production

▪ Land Area

The total area of land available to smallholders was 524,451 ha. The regional average land area utilised for crop production per crop growing household was only 1.7 ha. This figure is below the national average of 2.0 hectares.

▪ Planted Area

The area planted with annual crops and vegetables was 428,533 hectares out of which 160,820 hectares (37.5%) were planted during short rainy season and 267,713 hectares (62.5%) during long rainy season.

An estimated area of 295,529 ha (69.0% of the total planted area with annual and vegetable crops) was with cereals, followed by 77,017 hectares (18.0%) of pulses, 47,614 ha (11.1%) of roots and tubers, 5,346 ha (1.2%) of fruit and vegetables, 2,564 ha (0.6%) of oil seed and 465 ha (0.1%) of cash crops.

▪ **Maize**

Maize is the dominant annual crop grown in Tanga region and it had a planted area 4.56 times greater than beans, which had the second largest planted area. The area planted with maize constitutes 67 percent of the total area planted with annual crops. Other crops in order of their importance (based on area planted) are cassava, Irish potatoes, cowpeas, paddy, tomatoes, green gram, groundnuts and sweet potatoes.

There was a sharp increase in maize production (122%) over the period of 1997 to 1999, whereas there was a sharp decrease in maize production (46%) over the period from 2000 to 2003. The total production of maize in 2002/03 was 173,602 tonnes. The average area planted with maize per household ranged from 0.5 hectares in Lushoto District to 1.3 hectares in Kilindi District. Handeni district had the largest planted area of maize (95,688 ha) followed by Lushoto (51,118 ha), Muheza (50,778 ha), Korogwe (46,369 ha), Kilindi (32,536 ha), Pangani (7,042 ha) and Tanga (3,946 ha).

▪ **Paddy**

Paddy is the second most important cereal crop in the region in terms of planted area. The number of households that grew paddy in Tanga region during the long rainy season was 15,443. This represented 66 percent of the total crop growing households in Tanga Region in the long rainy season.

▪ **Cassava**

The area planted with cassava was larger than any other root and tuber crop in Tanga in terms of planted area (7.2% of the total area planted with annual crops and vegetables) and it accounted for 64.5 percent of the area planted with roots and tubers.

▪ **Fruit and Vegetables**

The total production of fruit and vegetables was 19,550 tonnes. The most cultivated fruit and vegetable crop was tomatoes. The production for this crop was 10,852 tonnes, which amounts to 55 percent of the total fruit and vegetable production, followed by cabbage 3,472 tonnes (18%) and chilies 1,973 tonnes (10%). The production of the other fruit and vegetable crops was relatively small.

▪ **Permanent Crops**

The area of smallholders planted area with permanent crops was 62,403 hectares which is 13 percent of the area planted with annual crops in the region. The most important permanent crop is coconuts which accounts for 24 percent of the total area planted with permanent crops followed by oranges (15%), banana (13%) and cashew (13%).

▪ **Improved Seeds**

The planted area using improved seeds was 52,089 ha which represents 13 percent of the total planted area with the annual crops and vegetables. The percentage use of improved seed in the short rainy season was 13.4 percent which is slightly higher than the corresponding percentage use for the long rainy season (12.73%).

- **Use of Fertilizers**

Most annual crop growing households do not use any fertiliser. The planted area without fertiliser for annual crops was 367,237 hectares representing 85.6 percent of the total planted area with annual crops. Of the planted area with fertiliser application, farm yard manure was applied to 45,411 ha which represented 10.6 percent of the total planted area (73.3 % of the area planted with fertiliser application). This was followed by compost (12,491 ha, 20.1%). Inorganic fertilizers were used on a very small area and represented only 6.6 percent of the area planted with fertilizers.

- **Irrigation**

In Tanga region, the area of annual crops and vegetables under irrigation was 41,089 ha representing 9.6 percent of the total area planted. The area under irrigation during the short rainy season was 8,088 ha accounting for 20 percent of the total area under irrigation. However, the percentage of the planted area under irrigation during the long rainy season was 12.3 percent compared with 5 percent in the short rainy season.

- **Crop Storage**

There were 228,187 crop growing households (87% of the total crop growing households) that reported storing various agricultural products in the region.

The most important stored crop was maize with 220,402 households storing 28,187 tonnes as of 1st January 2004. This was followed by beans and pulses (104,155 households and 1,914 tonnes), paddy (14,828 households and 827 tonnes) and groundnuts and bambara nuts (1,674 households and 54 tonnes). The rest of the crops were stored in very small amounts.

- **Crop Marketing**

The number of households that reported selling crop was 197,168 which represents 74.8 percent of the total number of crop growing households. The percent of crop growing households selling crops was highest in Muheza (84%) followed by Lushoto (80%), Tanga (77%), Kilindi (76%), Pangani (70%) Korogwe (65%) and Handeni (64%).

- **Agricultural Credit**

In Tanga region, few agricultural households (1,022, 0.4%) accessed credit, out of which 453 (44%) were male-headed households and 569 (56%) were female headed households. In Lushoto district only female headed households got credit for agriculture purposes, whereas in Korogwe, Tanga and Handeni districts only male households accessed credit. In Muheza district both male and female headed households accessed credit.

- **Crop Extension Services**

The number of agricultural households that received crop extension was 121,486 (46% of total crop growing households in the region). Some districts have more access to extension services than others (Chart 3.96). Korogwe district had a relatively high proportion of households that received crop extension messages (84%), followed by Lushoto (49%), Muheza (43%), Pangani (39%), Kilindi (27%), Handeni (22%) and Tanga (14%).

- **Soil Erosion and Water Harvesting Facilities**

The number of agricultural households that reported the presence of soil erosion and water harvesting facilities in their farms was 30,288. This number represents 11 percent of total number of agricultural households in the region. The

proportion of farmers with soil erosion control and water harvesting facilities was highest in Lushoto District (23%) followed by Korogwe (10%), Muheza (8%), Kilindi (3%), Handeni (2%), Tanga (1%) Pangani (0.5%).

iii) **Livestock and Poultry Production**

▪ **Cattle**

The total number of cattle in the region was 378,338. Cattle rearing is the dominant livestock type in the region followed by goats, sheep and pigs. The region had 2.2 percent of the total cattle population on the Tanzanian Mainland. The number of indigenous cattle was 350,210 head (92.6% of the total number of cattle in the region), 27,829 (7%) were dairy breeds and only 298 (1.4%) were beef breeds.

▪ **Goats**

The number of goat-rearing-households in the region was 68,764 (26% of all agricultural households) with a total of 514,620 goats giving an average of 7 head of goats per goat-rearing-households.

▪ **Sheep**

The number of sheep-rearing households was 35,381 (13% of all agricultural households) with a total of 164,209 sheep giving an average of 5 heads of sheep per sheep-rearing household.

▪ **Pigs**

The number of pig-rearing households in the region was 2,601 (1% of the total agricultural households) rearing about 6,281 pigs. This gives an average of 2 pigs per pig-rearing household.

▪ **Chicken**

The number of households keeping chickens was 176,806, raising 1,788,767 chickens. This gives an average of 10 chickens per chicken-rearing household. In terms of total number of chickens in the country Tanga ranked eighth out of the 21 Mainland regions.

▪ **Use of Draft Power**

The region has 738 oxen and they were only found in two districts, Korogwe and Kilindi with 592 and 146 head respectively. Tanga region has 0.03 percent of the total 2,233,927 head of oxen found on the Mainland and were used to cultivate 2,653 hectares of land.

▪ **Fish Farming**

The number of households involved in fish farming was 1,423 (0.5 percent of the total agricultural households in the region). Korogwe was the leading district with 634 agricultural households involved in fish farming (1.4%) followed by Lushoto 430 (0.5%), Muheza 336 (0.7%) and Tanga 23 (0.3%). Fish farming was not practiced in Pangani and Handeni districts.

iv) **Poverty Indicators**

▪ **Availability of Toilets**

It was estimated that 86.5 percent of all rural agricultural households used the traditional pit latrines, 1.8 percent used improved pit latrine and 0.7 percent had flush toilets. The remaining 0.1 percent of households had other unspecified types of toilets. Households with no toilet facilities represent 11 percent of the total agriculture households in the region.

- **Household Assets**

Out of all assets, radios had the highest percent of households owning them (61.3% of households) followed by bicycle (32.1%), iron (18.9%), wheelbarrow (3.4%), mobile phone (1.9%), television/video (1.0%), vehicle (0.9%) and landline phone (0.5%).

- **Source of Lighting Energy**

Wick lamp is the most common source of lighting energy in the region. About 77 percent of the total rural households used this source of energy followed by hurricane lamp (16.6%), pressure lamp (4.2%), mains electricity (1.3%), firewood (0.3%), solar (0.1%), candle (0.1%) and gas or biogas (0.1%).

- **Energy for Cooking**

The most prevalent source of energy for cooking was firewood, which was used by 96.4 percent of all rural agricultural households. The second most common source of energy for cooking was charcoal (2.72%). The rest of energy sources accounted for 0.88 percent. These were bottled gas (0.28%), crop residues (0.28%), mains electricity (0.14%), solar (0.10%), livestock dung (0.04%), paraffin/kerosene (0.03%) and gas/biogas (0.01%).

- **Roofing Materials**

The most used roofing material (for the main dwelling) was grass and/or leaves and it was used by 49.2 percent of the rural agricultural households however, this was closely followed by iron sheets (43.6%). Other roofing materials are grass/mud (4.8%), asbestos (1.1%), tiles (1.0%), concrete (0.1%) and others (0.2%).

- **Number of Meals per Day**

About 72.3 percent of the holders in the region took three meals per day, 25.2 percent took two meals, 2.4 percent took one meal and 0.1 percent took four meals.

- **Food Security**

Households which seldom had problems in satisfying their food needs represent 42 percent of the total number of agriculture households in the region. Households with recurring food shortage problems represent 8.3 percent whereas those with little problems represent 7.6 percent. About 7 percent of agriculture households always faced food shortages whilst 35 percent had not experienced any food shortage problems.

- **Main Source of Cash Income**

Selling of food crops was the main cash income earning activity reported by 25.5 percent of all rural agricultural households. The second main cash income earning activity was casual labour (20.9%) followed by selling of cash crops (16.8%), businesses (14.3%) and cash remittances (7.4%). Other income earning activities were employment (5.0%), sale of livestock (4.0%), sale of forest products (2.5%), sale of livestock products (1.7%) and fishing (0.9%).

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1. BACKGROUND INFORMATION

1.1 Introduction

This part of the report presents a brief description of the regional profile by providing information on geographical location, land area, climate, administrative set up, population and socio-economic indicators. The information will provide the user with a general understanding of the region and its resources.

1.2 Geographical Location and Boundaries

Tanga region is situated at the North-East corner of Tanzania between 4⁰ and 6⁰degrees below the Equator and 37⁰ – 39⁰10' degrees East of the Greenwich Meridian. Tanga shares borders with Kenya to the North, Morogoro and Coast regions to the South, Kilimanjaro and Arusha regions to the West and the Indian Ocean to the East.

The region comprises seven districts namely Lushoto, Korogwe, Muheza, Tanga, Pangani, Handeni and Kilindi. The region headquarters is located in Tanga District.

1.3 Land Area

The region has an area of 26,808 square kilometers, of which 17,000 square kilometers are arable land.

1.4 Climate

1.4.1 Temperature

The dominant climate is warm and wet along the coast and inland of the Tanga region. The Western Plateau of Handeni district has a hot and dry climate and in the Usambara Mountain range a temperate climate is found. In most cases, there is no big variation of temperature at the coast due to the influence of the Indian Ocean. The coolest month is June with minimum temperature of 20⁰C. The hottest month is December with maximum temperature of 32⁰C.

1.4.2 Rainfall

The region has two rainy seasons, the short and the long rainy seasons. The short rainy season (Vuli) is from October to November and the Long rainy season (Masika) from April to May.

In Tanga region, most areas get rainfall of at least 750mm per year. The amount of rainfall is about 1,100 to 1,400mm along the coast, decreasing inland with the exception of the Usambara Mountains, where, depending upon the slope position and height, the amount of rainfall may exceed 2000mm per year. In the Maasai Plains (North West of Handeni) and in the dry plains of Korogwe, the average rainfall is below 600mm.

1.5 Population

According to the 2002 Population and Housing Census, there were 1,642,015 inhabitants in Tanga region. The population of Tanga region ranked 10th of the 21 regions in Tanzania.

1.6 Socio - Economic Indicators

The regional Gross Domestic Product (GDP) at current prices for the year 2003 was estimated to be TShs 418,816 million with a per capita income of shillings 236,115. The region held 10th position among regions on GDP and contributed about 4.3 percent to the national GDP¹

Tanga region is famous for limestone and gypsum mineral deposits, all of which are used in the cement factory situated in the region.

It has many tourist attractions such as Mkomazi Game Reserve, Amboni Caves, Totten Islands, Tongoni Ruins, Pangani Beach and Hot Water Baths in Amboni and Amani Nature Reserve and has first class hotels (including Mkonge Hotel and Baobab Tree Inn) with conference facilities.

The region is famous for producing both food and cash crops. The main food crops produced in Tanga region include: maize, paddy, beans and sorghum. The main cash crops include sisal and tea. Livestock keeping is also an important economic activity in the region.

¹ Hali ya Uchumi wa Taifa Katika Mwaka 2003

2. INTRODUCTION

This part of the report provides the technical and operational description of the National Sample Census of Agriculture (NSCA), carried out in the rural areas of Tanzania Mainland and Zanzibar during the 2002/03 agricultural year. It details the background and the rationale for carrying out the NSCA in 2002/03 agricultural year. It also explains the sampling procedures, designing and implementation of the data processing system.

2.1 The Rationale for Conducting the National Sample Census of Agriculture

In 2003, the Government of Tanzania launched the Agricultural Sample Census as an important part of the Poverty Monitoring Master Plan which supports the production of statistics for advocacy of effective public policy, including poverty reduction, access to services, gender, as well as the standard crop production data normally collected in an agriculture census. The census is intended to fill the information gap and support planning and policy formulation by high level decision making bodies. It is also meant to provide critical benchmark data for monitoring Agriculture Sector Development Programme (ASDP) and other agriculture and rural development programs as well as prioritising specific interventions of most agriculture and rural development programs.

Following the decentralisation of the Government's administration and planning functions, there has been a pressing need for agriculture and rural development data disaggregated at regional and district levels. The provision of district level estimates will provide essential baseline information on the state of agriculture and support decision making by the Local Government Authorities in the design of District Agricultural Development and Investment Projects (DADIPS). The increase in investment is an essential element in the national strategy for growth and reduction of poverty.

This report (Volume V) is among the 21 regional reports for the mainland. Other Census reports include the Technical Report (Volume I), crop sector at national and regional levels including Zanzibar estimates (Volume II), Livestock Report (Volume III), Smallholder Household Characteristics and Access to Natural Resources Report (Volume IV), 21 Regional Reports for the Mainland (Volume V), Large Scale Farms Report (Volume VI) and a separate report for Zanzibar (Volume VII). In order to address the specific issue of gender, a separate thematic report on gender has been published. Other thematic reports will be produced depending on the demand and availability of funds. In addition to these reports two dissemination applications have been produced to allow users to create their own tabulations, charts and maps.

The report is divided into five main sections: Background Information, Introduction, Results, Evaluation and Conclusion and Appendices. The definitions relating to all aspects of this report can be found in the questionnaire (Appendix III).

2.2 Census Objectives

The 2003 Agriculture Sample Census was designed to meet the data needs of a wide range of users down to district level including policy makers at local, regional and national levels, rural development agencies, funding institutions, researchers, Non government Organisations (NGOs), farmer organisations, etc. As a result, the dataset is both more numerous in its sample and detailed in its scope compared to previous censuses and surveys. To date this is the most detailed Agricultural Census carried out in Africa. The census was carried out in order to:

-
- Identify structural changes if any, in the size of farm household holdings, crop and livestock production, farm input and implement use. It also seeks to determine if there are any improvements in rural infrastructure and in the level of agriculture household living conditions;
 - Provide benchmark data on productivity, production and agricultural practices in relation to policies and interventions promoted by the Ministry of Agriculture and Food Security and other stake holders.
 - Establish baseline data for the measurement of the impact of high level objectives of the Agriculture Sector Development Programme (ASDP), National Strategy for Growth and Reduction of Poverty (NSGRP) and other rural development programs and projects.
 - Obtain benchmark data that will be used to address specific issues such as: food security, rural poverty, gender, agro-processing, marketing, service delivery, etc.

2.3 Census Coverage and Scope

The census was conducted for both large and small scale farms. The National Sample Census of Agriculture covered a total of 3,221 selected rural villages of Tanzania Mainland out of which 215 villages were from Tanga region.

The census covered agriculture in detail as well as many other aspects of rural development and was conducted using three types of questionnaires:

- Small scale farm questionnaire
- Community level questionnaire
- Large scale farm questionnaire

The small scale farm questionnaire was the main census instrument and it includes questions related to crop and livestock production and practices; population demographics; access to services, resources and infrastructure; issues on poverty, gender and subsistence versus profit making production units. The main sections covered are as follows:

- Identification (i.e. region, district, ward and village)
- Household and holding characteristics
- Household information
- Land ownership/tenure
- Land use
- Access and use of resources
- Crop and vegetable production
- Agro processing and by-Products
- Crop storage and marketing
- On-farm investment
- Access to farm inputs and implements
- Use of credit for agricultural purposes
- Tree farming/agro-forestry
- Crop extension services
- Livelihood constraints
- Animal contribution to crop production
- Livestock

-
- Livestock products
 - Fish farming
 - Livestock extension
 - Labour use
 - Access to infrastructure and other services
 - Household facilities

The community level questionnaire was designed to collect village level data such as access and use of common resources, community tree plantation and seasonal farm gate prices.

The large scale farm questionnaire was administered to large scale farms that were either privately or corporately managed. There will be a national report on large scale farming on Tanzania Mainland.

2.4 Legal Authority of the National Sample Census of Agriculture

The NSCA 2002/03 was conducted under the legal authority of the 2000 National Bureau of Statistics Act which, among other things, makes data collected from individuals strictly confidential and to be used for statistical purposes only.

2.5 Reference Period

Two types of reference periods were used namely the agricultural year and the reference date for livestock enumeration. The agricultural year 2002/03 (that is October 2002 to September 2003) was used for the data items that are related to crop production. The reference date of enumeration for livestock and poultry count was 1st October 2003.

2.6 Census Methodology

The main focus at all stages of the census execution was on data quality and this is emphasised in this section. The main activities undertaken include:

- Census organisation
- Tabulation plan preparation
- Sample design
- Design of census questionnaires and other instruments.
- Field pretesting of the census instruments
- Training of trainers, supervisors and enumerators
- Information Education and Communication (IEC) campaign
- Data Collection
- Field supervision and consistency checks
- Data processing:
 - Scanning
 - ICR extraction of data
 - Structure formatting application
 - Batch validation application
 - Manual data entry application
 - Tabulation preparation using SPSS

-
- Table formatting and charts using Excel, map generation using ArcView and Freehand.
 - Report preparation using Word and Excel.

2.6.1 Census Organization

The Census was conducted by the National Bureau of Statistics in collaboration with the sector ministries of agriculture, and the Office of the Chief Government Statistician in Zanzibar. At the national level the Census was headed by the Director General of the National Bureau of Statistics with assistance from the Director of Economic Statistics. The Planning Group, made up of staff from the National Bureau of Statistics, Department of Agricultural Statistics and three representatives from the Ministry of Agriculture and Food Security (Department of Policy and Planning), oversaw the overall operational aspects of the Census. At the regional level, implementation of census activities was overseen by the Regional Statistical Officer of NBS and the Regional Agriculture Supervisor from the Ministry of Agriculture and Food Security. At the District level, two supervisors from the President's Office, Regional Administration and Local Government (PORALG), managed the enumerators who also came from the same ministry.

Members of the Planning Group had a minimum qualification of a bachelor degree, the regional supervisors were either agricultural economists, statisticians or statistical officers. The district supervisors and enumerators had diploma level qualifications in agriculture.

The Census and Surveys Technical Working Group provided support in sourcing financing, approving budget allocations and technical assistance inputs as well as monitoring the progress of the census. A Technical Committee for the census was established with members from key stakeholder organisations (i.e. NBS, sector ministries of agriculture, President's Office, Planning and Privatization (POPP), PORALG, University of Dar es Salaam (UDSM), Tanzania Food and Nutrition Centre (TFNC) and the Office of Chief Government Statistician (OCGS) in Zanzibar). The main function of the committee was to approve the proposed instruments and procedures developed by the Planning Group. It also approved the tabulations and analytical reports prepared from the Census data.

2.6.2 Tabulation Plan

The tabulation plan was developed following three user group workshops and thus reflects the information needs of the end users. It took into consideration the tabulations from previous census and surveys to allow trend analysis and comparisons.

2.6.3 Sample Design

The Mainland sample consisted of 3,221 villages. These villages were drawn from the National Master Sample (NMS) developed by the National Bureau of Statistics (NBS) to serve as a national framework for the conduct of household based surveys in the country. The National Master Sample was developed from the 2002 Population and Housing Census. In most cases, within each selected village, data was collected from a sub-sample of fifteen agricultural households. In few large villages thirty households were selected. The total Mainland sample was 48,315 agricultural households. In Zanzibar a total of 317 EAs were selected and 4,755 agricultural households were covered. Nationwide, all regions and districts were sampled with the exception of three urban districts (two from Mainland and one from Zanzibar).

In both Mainland and Zanzibar a stratified two stage sample was used. In the first stage, villages/enumeration areas (EAs) were selected with probability proportional to the number of villages in each district. In the second stage, 15 households were selected from a list of farming households in each Village/EA using systematic random sampling. Table 2.1 gives the sample size of households, villages and districts for Tanzania Mainland and Zanzibar.

Table 2.1: Census Sample Size

Number of	Mainland	Zanzibar	Total
Households	48,315	4,755	53,070
Villages/Eas	3,221	317	3,539
Districts	117	9	126
Regions	21	5	26

2.6.4 Questionnaire Design and Other Census Instruments

The census questionnaires were designed following user/producer meetings to ensure that the information collected was in line with their data needs. Several features were incorporated into the design of the questionnaire to increase the accuracy of the data:

- Where feasible all variables were extensively coded to reduce post enumeration coding error.
- The definitions for each section were printed on the opposite page so that the enumerator could easily refer to the instructions whilst interviewing the farmer.
- The responses to all questions were placed in boxes printed on the questionnaire, with one box per character. This feature made it possible to use scanning and ICR technologies for data entry.
- Skip patterns were used to avoid asking unnecessary questions
- Each section was clearly numbered, which facilitated the use of skip patterns and provided a reference for data type coding for the programming of CSpPro, SPSS and the dissemination applications.

Besides the questionnaires, there were other instruments used:

- Village listing forms that were used for listing households in the villages and from these list a systematic sample of 15 agricultural households were selected from each village.
- Training manual which was used by the trainers for the cascade/pyramid training of supervisors and enumerators. This manual was trainers guiding document on the procedures to follow during the training
- Enumerator Instruction Manual which was used as reference material.

2.6.5 Field Pre-Testing of the Census Instruments

The Questionnaire was pre-tested in five locations (Arusha, Dodoma, Tanga, Unguja and Pemba). This was done purposely to test the wording, flow and relevance of the questions and to finalise crop lists, questionnaire coding and manuals. In addition to this, several data collection methodologies had to be finalised, namely, livestock numbers in pastoralist communities, cut flower production, mixed cropping, use of percentages in the questionnaire and finalising skip patterns and documenting consistency checks.

2.6.6 Training of Trainers, Supervisors and Enumerators

Cascade/pyramid training techniques were employed to maintain statistical standards. The top level training was provided to 66 national and regional supervisors (3 per region plus Zanzibar). The trainers were members of the Planning Group and the trainees were from the National Bureau of Statistics and the sector ministries of agriculture. The second level training was for the district supervisors and enumerators. This training was conducted in the regions. In each region three training sessions were conducted for the district supervisors and enumerators. In addition to training in field level Census methodology and definitions, emphasis was placed on training the enumerators and supervisors in consistency checking.

Tests were given to the enumerators and supervisors and the best 50 percent of the trainees were selected to administer the smallholder and community level questionnaires. This increased the number of interviews per enumerator but it also released finance to increase the number of supervisors and hence the Supervisor Enumerator Ratio. The household listing exercise was carried out by all trained enumerators.

2.6.7 Information, Education and Communication (IEC) Campaign

Information, Education and Communication (IEC) is an important aspect of any census/survey undertaking. This is due to the fact that inadequately informed and hence uncooperative citizens may jeopardize the entire census/survey. As far as the 2002/03 Agricultural Sample Census was concerned, the main objective of the IEC program was to sensitize and mobilize Tanzanians to support, cooperate and participate in the census exercise.

Radio, television, newspapers, leaflets, t-shirts and caps were used to publicise the Sample Census. T-shirts and caps were used by the field staff and the village chairmen as official uniforms during the field work. The village chairmen helped to locate the selected households.

2.6.8 Household Listing

The household listing exercise was done in seven days. During the listing exercise, forms ACLF1 and ACLF2 were administered. The information collected included the number of fields operated by the household, the number of different types of livestock and poultry. This information was used to determine the agricultural households. From the list of agricultural households, 15 households were selected for the interview. The selection was done using the Random Number Table.

2.6.9 Data Collection

Data collection activities for the 2002/2003 Agricultural Sample Census took three months from January to March 2004. The data collection methods used during the census were by interview and no physical measurements, e.g., crop cutting and field area measurement were taken. Field work was monitored by a hierarchical system of supervisors at the top of which was the Mobile Response Team followed by the national, regional, and district supervisors.

The Mobile Response Team consisted of three principal supervisors who provided overall direction to the field operation and responded to queries arising outside the scope of the training exercise. The mobile response team consisted of the Manager of Agriculture Statistics Department, Long-term Consultant and Desk Officer for the Census. Decisions made on definitions and procedures were then communicated back to all enumerators via the national, regional and district supervisors.

District supervision and enumeration were done by staff from the President's Office, Regional Administration and Local Government (PORALG). National and regional supervisions were provided by senior staff of the National Bureau of Statistics and the sector ministries of agriculture. During the household listing exercise 3,221 extension staff were used. For the enumeration of the small holder questionnaire, 1,611 enumerators were used and additional 5 percent enumerators were held in reserve in case of drop outs during the enumeration exercise.

2.6.10 Field Supervision and Consistency Checks

Enumerators were trained to probe the respondents until they were satisfied with the responses given before they recorded them in the questionnaire. The first check of the questionnaires was done by enumerators in the field during enumeration. The second check was done by the district supervisors followed by regional and national supervisors. Supervisory visits at all levels of supervision focused on consistency checking of the questionnaires. Inconsistencies encountered were corrected, and where necessary a return visit to the respondent was made by the enumerator to obtain the correct information. Further quality control checks were made through a major post enumeration checking exercise where all questionnaires were checked for consistencies by all supervisors in the district offices.

2.6.11 Data Processing

Data processing consisted of the following processes:

- Manual editing
- Data entry
- Data structure formatting
- Batch validation
- Tabulation
- Illustration production
- Report formatting

Manual Editing

Prior to scanning, all questionnaires underwent a manual cleaning exercise. This involved checking that the questionnaire had a full set of pages, correct identification and good handwriting. A score was given to each questionnaire based on the legibility and the completeness of enumeration. This score will be used to assess the quality of enumeration and supervision in order to select the best field staff for future censuses/surveys.

Data entry/Scanning and ICR extraction technologies

Scanning and ICR data capture technology was used for the small holder questionnaire. This not only increased the speed of data entry, it also increased the accuracy due to the reduction in keystroke errors. Interactive validation routines were incorporated into the ICR software to track errors during the verification process. The scanning operation was so successful that it is highly recommended that this technology be adopted for future censuses/surveys.

The Census and Surveys Processing Program (CSPPro) was used to enter 2,880 of small holder questionnaires that were rejected by the Intelligent Character Recognition (ICR) extraction application.

Data structure formatting

A program was developed in visual basic to automatically alter the structure of the output from the scanning/extraction process in order to harmonise it with the manually entered data. The program automatically checked and changed the number of digits for each variable, the record type code, the number of questionnaires in the village, the consistency of the Village Identification (ID) code and saved the data of one village in a file named after the village code.

Batch validation

A batch validation program was developed in order to identify inconsistencies within a questionnaire. This is in addition to the interactive validation during the ICR extraction process. The procedures varied from simple range checking within each variable to more complex checking between variables. It took six months to screen, edit and validate the data from the smallholder questionnaire. After the long process of data cleaning, the results were prepared based on a pre-designed tabulation plan.

Tabulations

Statistical Package for Social Sciences (SPSS) was used to produce the Census results and Microsoft Excel was used to organize the tables and compute additional indicators.

Analysis and report preparation

The analysis in this report focuses on regional and district production estimates, districts comparisons and time series analysis. Microsoft Excel was used to produce charts; whereas Microsoft Word was used to compile the report.

Data quality

A great deal of emphasis was placed on data quality throughout the whole exercise from planning, questionnaire design, training, supervision, data entry, validation and cleaning/editing. As a result of this NBS believes that the Census is highly accurate and representative of what was experienced at field level during the Census year. With very few exceptions the variables in the questionnaire are within the norms for Tanzania and they follow expected time series trends when compared to historical data. Standard Errors and Coefficients of Variation for the main variables can be found in the Technical Report (Volume I).

2.7 Funding Arrangements

The Agricultural Sample Census was supported mainly by the European Union (EU) who financed most of the operational activities. Other funds for operational activities came from the Government of Tanzania, Government of Japan, United Nations Development Programme (UNDP) and other partners in the Pool Fund of the Vice President's Office (VPO). In addition to this, technical assistance was provided by the European Union (EU), Department for International Development (DFID) and Japanese International Cooperation Agency (JICA). Technical assistances were managed by Ultek Laurence Gould Consultants (ULG), Scotts Agriculture Consultancy Ltd (SAC) and the Food and Agriculture Organisation (FAO).

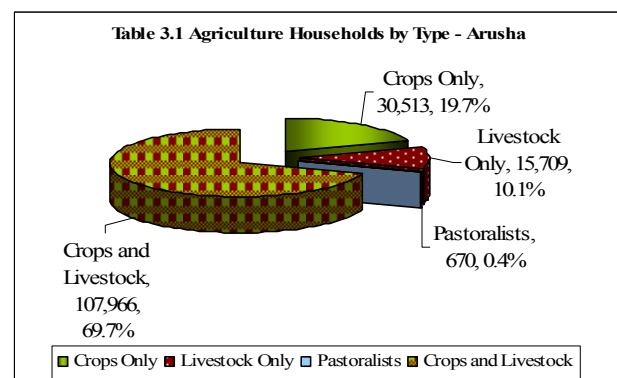
PART III: CENSUS RESULTS

This part of the report presents the results of the census data for Arusha region which are based on the data tables presented in Appendix A2. The results are presented in different forms including brief summaries, charts, condensed tables and graphs and Maps in order to make it easier for the users to understand. Comparisons are made between related variables and between districts. Comparisons are also made with past censuses/surveys results such as the 1994/95 National Sample Census of Agriculture (NSCA), the 1995/96 and the 1996/97 Expanded Agricultural Surveys, the 1997/98 Integrated Agricultural Surveys, the 1998/99 District Integrated Agricultural Survey and the 1999/00 Rapid Agricultural Appraisal Survey. The presentation of results is divided into four main sections which are household characteristics, crop results, livestock results and Poverty indicators. More effort has been placed in analyzing the results in order to formulate solid conclusions than in previous censuses and surveys.

3.1 Household Characteristics

3.1.1 Type of Household

The number of agricultural households in Arusha region was 154,857. The largest number of agriculture households was in Arumeru (76,022) followed by Karatu (27,341), Monduli (25,996), Ngorongoro (23,860) and Arusha (1,637) (Map 3.1). The highest density of households was found in Arumeru (86/km²) (Map 3.2). Most households (107,966, 69.7%), were involved in crop production as well as livestock keeping, 30,513 (19.7%) were involved in growing crops only, and 15,709 (10.1%) rearing livestock only, 670 (0.4%) pastoralists, (Chart 3.1) (Map 3.3, 3.4, 3.5 and 3.6).

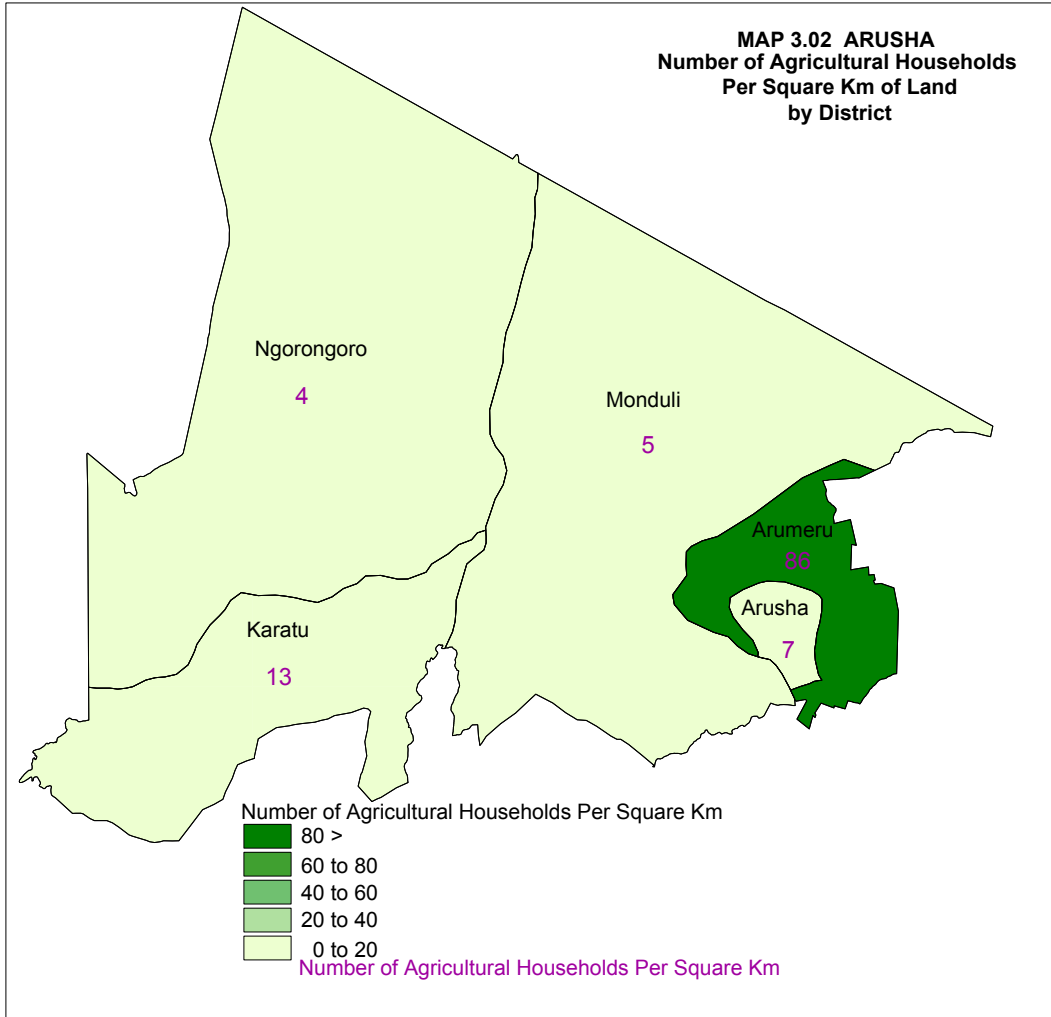
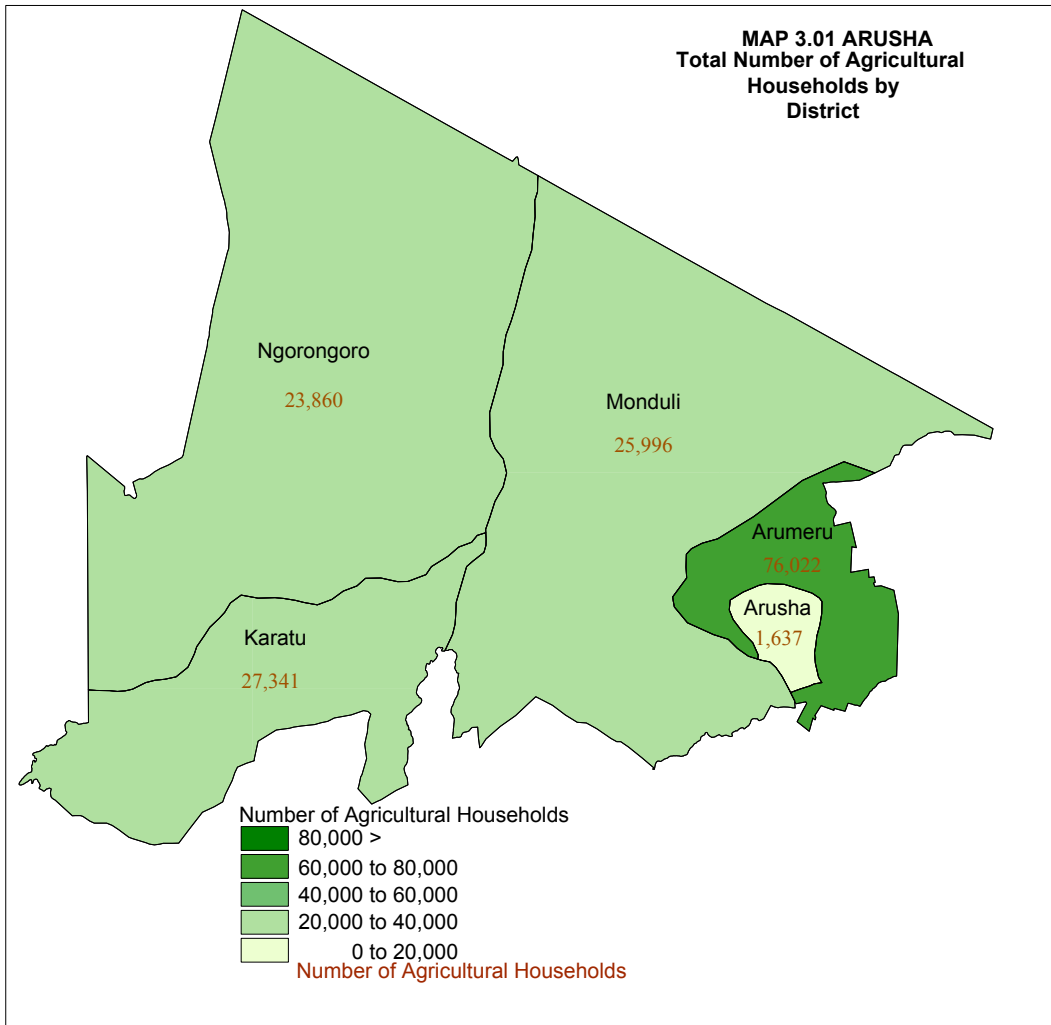


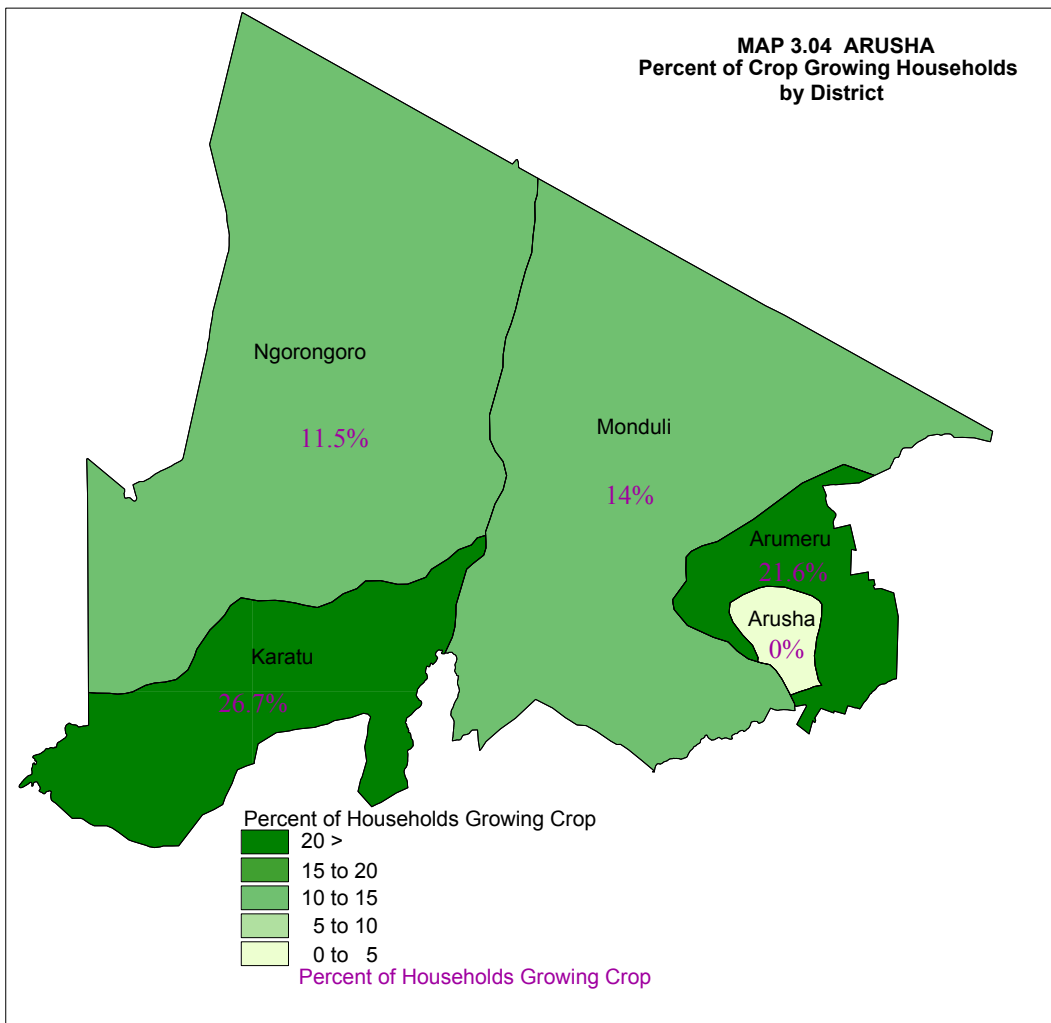
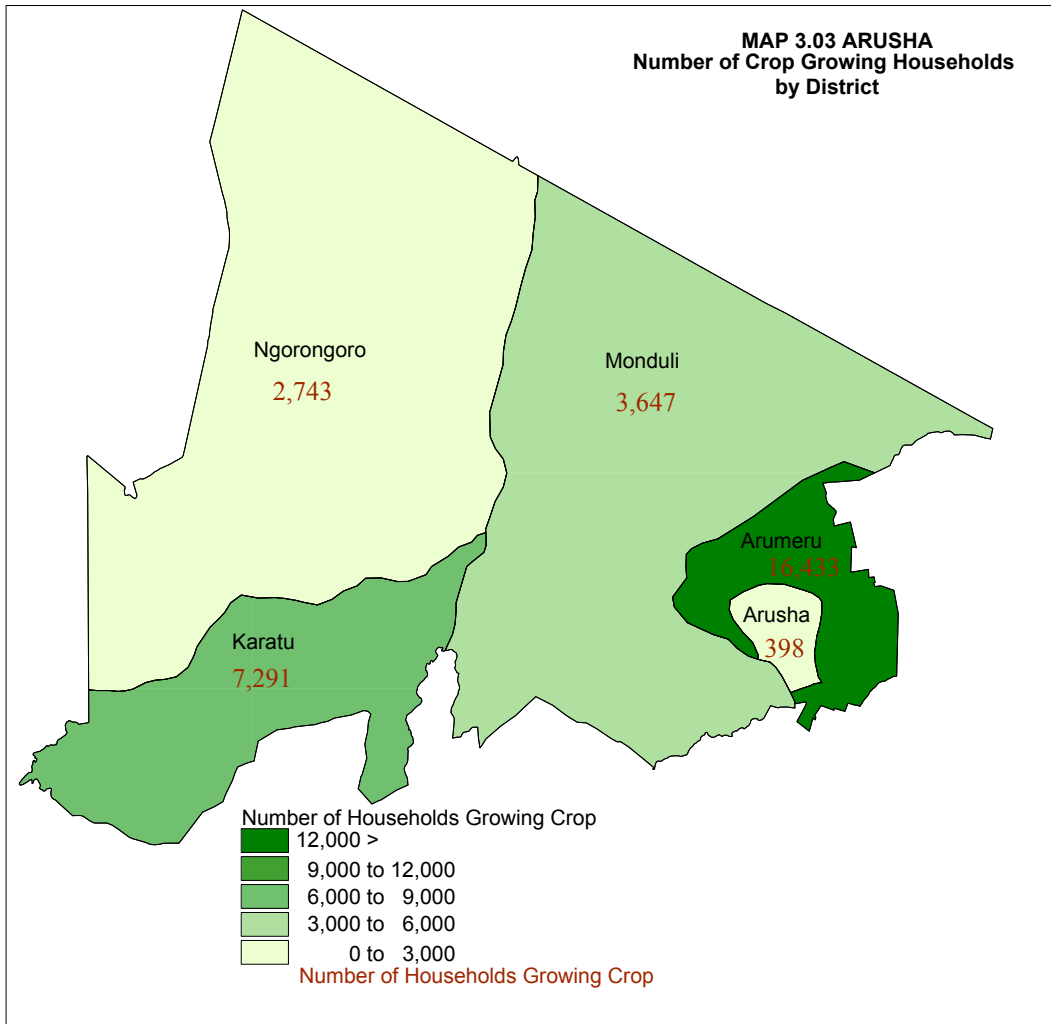
3.1.2 Livelihood Activities/Source of Income

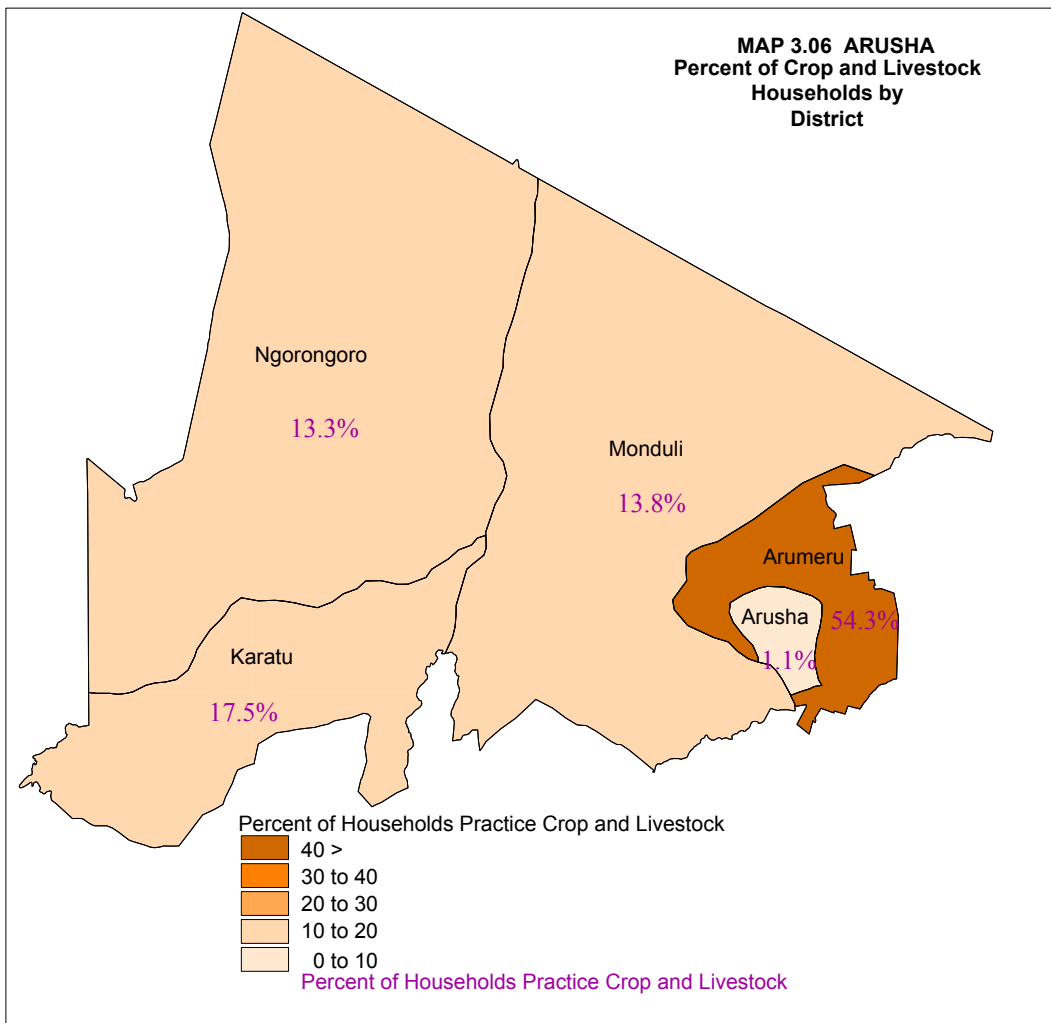
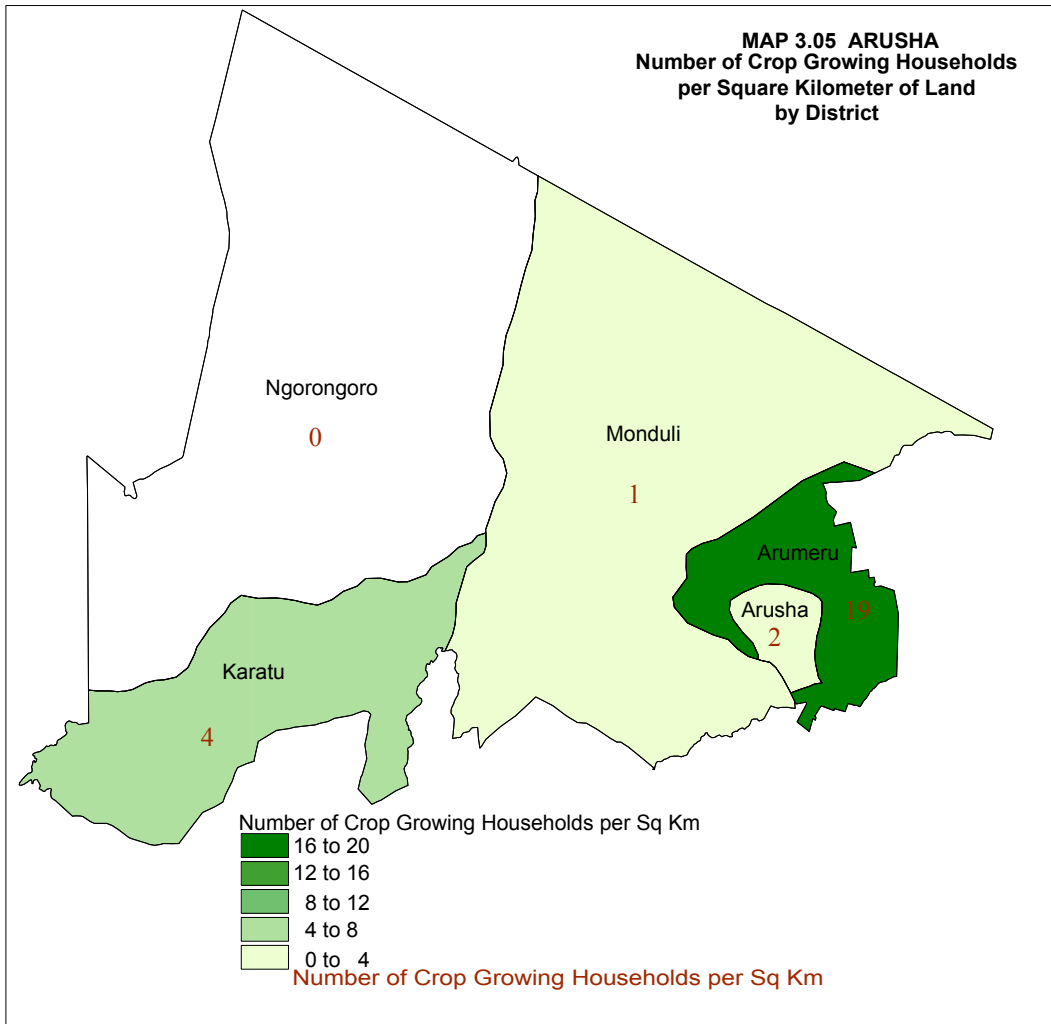
The census results for Arusha region indicates that most of the agricultural households ranked annual crop farming as an activity that provides most of their cash income followed by livestock keeping/herding, tree/forest resources, off farm, permanent crop farming, remittances, and fishing/hunting (Table 3.1). Monduli and Ngorongoro districts are the only ones whereby annual crop farming was not the most important source of livelihood, being replaced by livestock keeping/herding

Table 3.1 The Livelihood Activities/Source of Income of the Households Ranked in Order of Importance by District

District	Livelihood Activity						
	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Monduli	3	6	1	4	5	7	2
Arumeru	1	5	2	3	6	7	4
Arusha	1	6	3	2	5	7	4
Karatu	1	6	2	4	5	7	3
Ngorongoro	2	6	1	4	5	7	3
Total	1	5	2	4	6	7	3

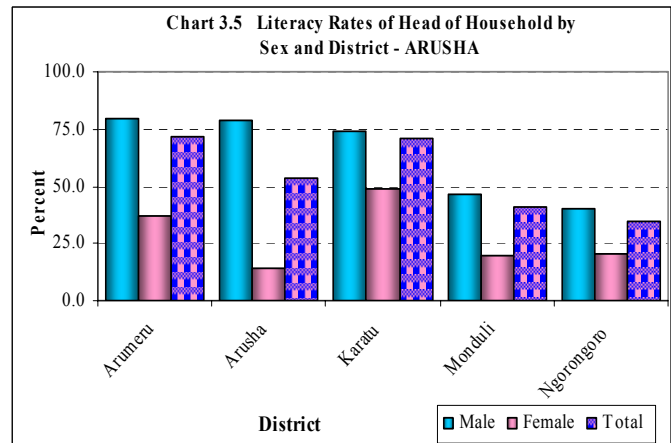






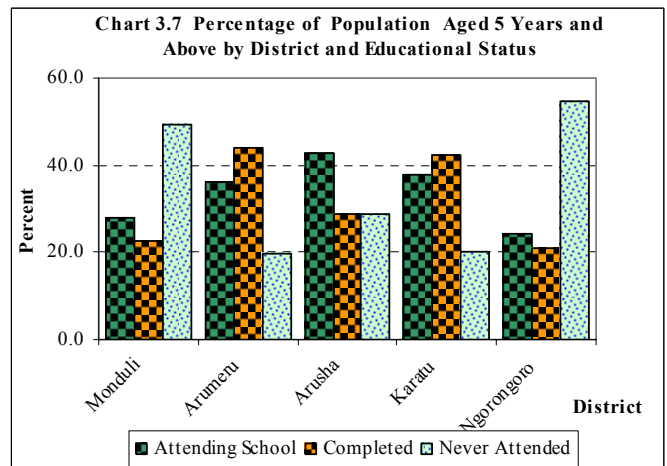
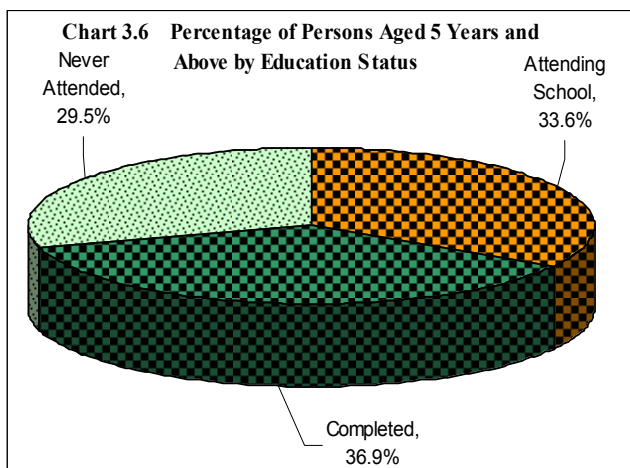
Literacy Rates for Heads of Households

The literacy rate for the heads of households in the region was 60.3 percent. The literacy rates among the male and female heads of households were 68 and 31 percent respectively. Male head of household literacy rate was higher than that of females in all districts. The district with the highest literacy rate amongst heads of households was Arumeru (71.3%) followed by Karatu (70.9%), Arusha (53.5%), Monduli (41.0%) and Ngorongoro (34.4%) (Chart 3.5).



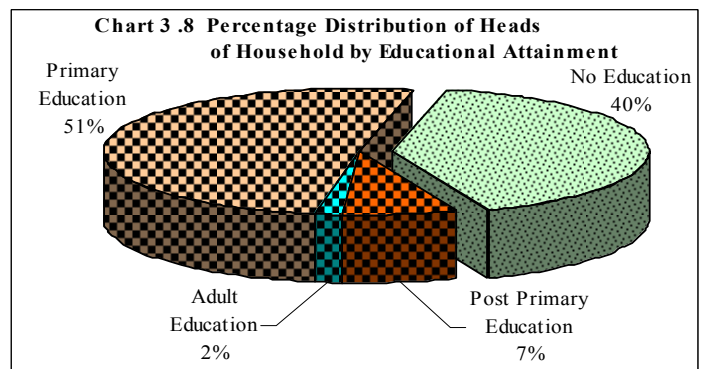
Educational Status

Information on educational status was collected from individual agricultural households. The results show that 36.9 percent of the population aged 5 years and above in agricultural households in the region had completed different levels of education and 33.6 percent were still attending school. Those who have never attended school were 29.5 percent (Chart 3.6).



Agricultural households in Arumeru district had the highest percentage (43.9%) of population aged 5 years and above who had completed different levels of education. This was followed by Karatu and Arusha districts with 42.2 and 28.7 percent respectively. Monduli and Ngorongoro districts had the lowest percentages of 22.7 and 21.1.

The number of heads of agricultural households with formal education in Arusha region was 89542 (57.8%), those without formal education were 62599 (40%) and those with only adult education were 2716 (2%). The majority of heads of agricultural households (50.6%) had primary level education whereas only 7.3 percent had post primary education.

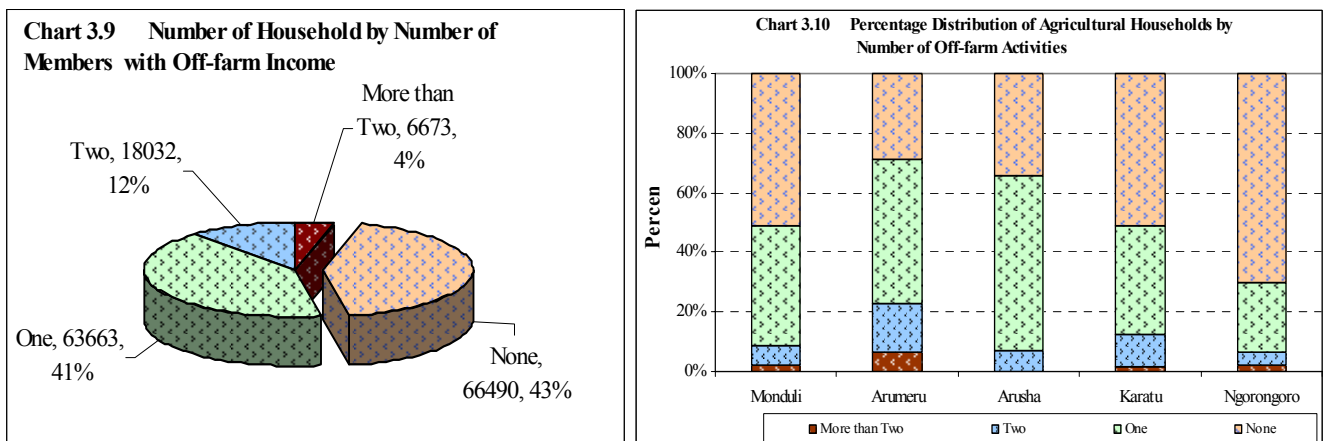


With regard to the heads of agricultural households with primary or secondary education in Arusha region, Arumeru district had the highest percentages (55% for primary and 78%

for secondary). This was followed by Karatu (23% primary and 10% secondary), Monduli (12% primary and 9% secondary) and Ngorongoro (10% primary and 2% secondary). Arusha had the lowest percentage of heads of agricultural households with both primary education (1%) and secondary education (1%) (Chart 3.8).

3.1.6 Off-farm Income

Off-farm income refers to cash generated from non-agricultural activities. This can be either from permanent employment (i.e., government, private sector or other), temporary employment or labourers. It also includes cash generated from working on farms belonging to other farmers. Off-farm income is important amongst agriculture households in Arusha with 57 percent of households having at least one member with off-farm income. In Arusha region 63,663 households (41%) had only one member aged 5 and above involved in only one off-farm income generating activity, 18,032 households (12%) had two members involved in off-farm income generating activities and 6673 households (4%) had more than two members involved in off-farm income generating activities.



Arumeru district had the highest percentage of agriculture households with off-farm income (over 70% of total agriculture households in the district). Other districts with high percent of agriculture households with off-farm income were Arusha (66%), Karatu (49%) and Monduli (49%). Ngorongoro district had the lowest percent of agriculture households with off-farm income (30%). The district with the highest percent of agriculture households with more than one member with off-farm income was Arumeru (32%). Arusha district had very few households with more than one member having off-farm income (11%).

3.2 Land Use

Land area and planted area are two different types of area measurements. Land area refers to the physical area of land and is the same regardless of the number of crops planted on the land in one year. Planted area is the total area of crops planted in a year and the area is summed if there were more than one crop on the same land per year. A number of terms are used in this section which requires defining for clarification as follows:

Land available refers to the area of land that has been allocated to smallholders through customary law, official title or other forms of ownership. Land available does NOT mean the total area of land that is designated as agriculture land in the country, however it is the land that is available to smallholders given the location of villages and lack of access to more remote parcels of unused agriculture designated land.

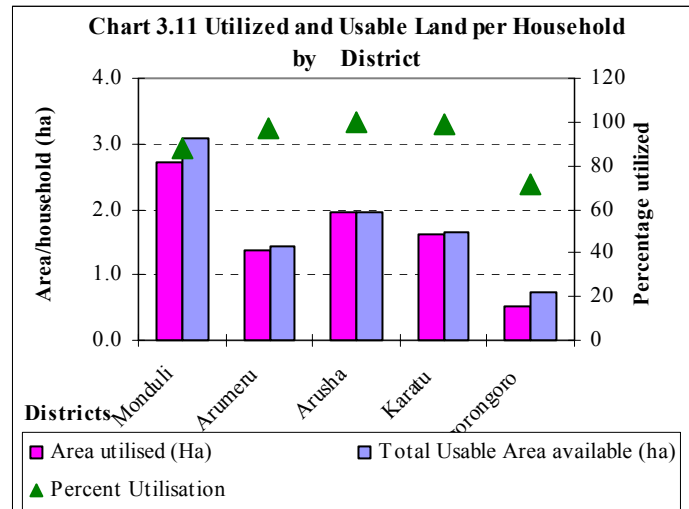
Usable land refers to the available land minus the land that cannot be used e.g. bare rock, shallow soils, steep slopes, swamp areas etc. It does however include un-cleared bush, Utilised land refers to the land that was used during the year.

3.2.1 Area of Land Utilised

The total area of land available to smallholders was 257,627 ha. The regional average land area utilised for agriculture per household was only 1.5 ha. This figure is below the national average which is estimated at 2.0 hectares. Ninety three percent of the total land available to smallholders was utilised. Only 6.7 percent of usable land available to smallholders was not used (Chart 3.11).

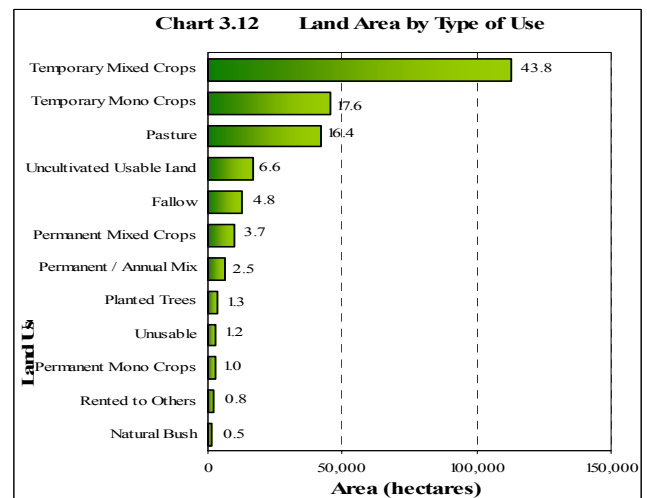
Large differences in land area utilised per household exist between districts with Arusha and Monduli

utilizing between 2.0 and 2.7 ha per household. The smallest land area utilised per household is found in Ngorongoro (0.5 ha). The percentage utilized of the usable land per household is highest in Arusha (100%) and lowest in Ngorongoro (71%). Ninety three percent of the total land available to smallholders was utilised. Only 6.7 percent of usable land available to smallholders was not used (Chart 3.11 and Map 3.7).



3.2.2 Types of Land Use

The area of land under temporary mono crop was 112,739 hectares (44% of the total land available to smallholders in Arusha), followed by permanent/annual mix (45,312 ha, 18%), temporary mixed crops (42,336 ha, 16%), uncultivable usable land (16,931 ha, 7%), area under fallow (12,348 ha, 5%), permanent mixed crop (9,556 ha, 4%), permanent monocrop (6,386 ha, 2%), unusable area (3,261 ha, 1%), area rented to others (3,028 ha, 1%), area planted with trees (2,567 ha, 1%), area under natural bush (1,969 ha, 1%) and area under pasture (1,194 ha, 0.4%).

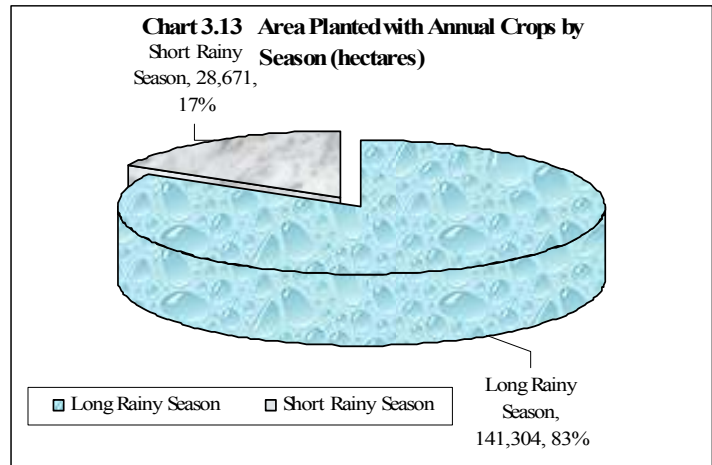


3.3 Annual Crop and Vegetable Production

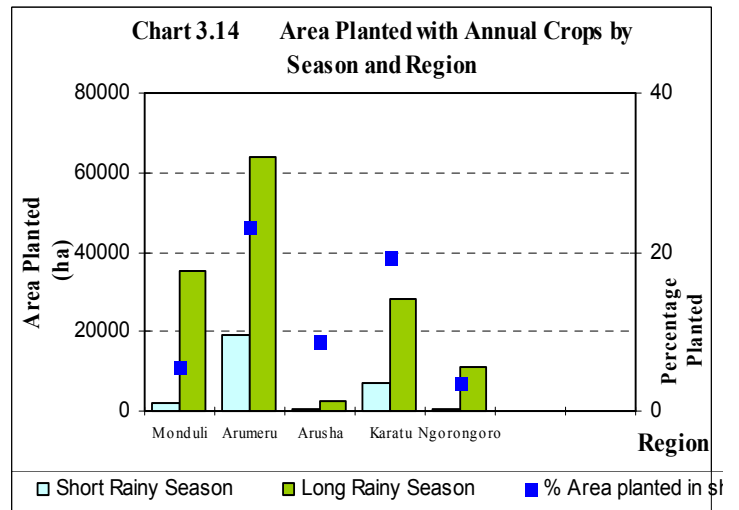
Arusha region has two rainy seasons, namely the short rainy season (October to November) and the long rainy season (April to May). The quantity of crops produced in both seasons will be used as a base for comparison with the past surveys and censuses.

3.3.1 Area Planted

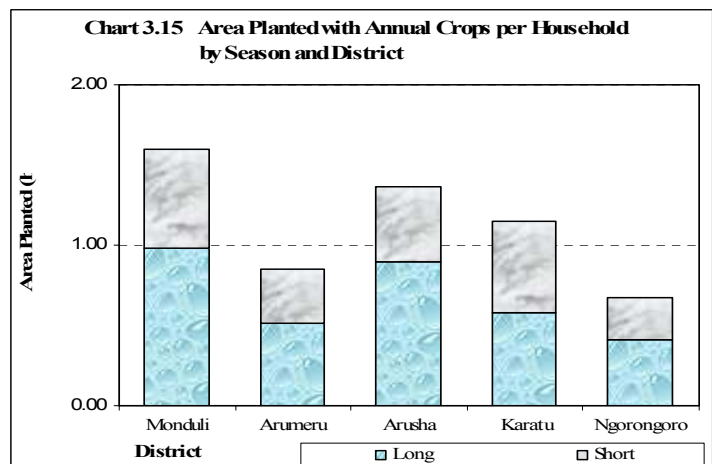
The area planted with annual crops and vegetables was 169,976 hectares out of which 28,671 hectares (17%) were planted during short rainy season and 141,304 hectares (83%) during long rainy season.

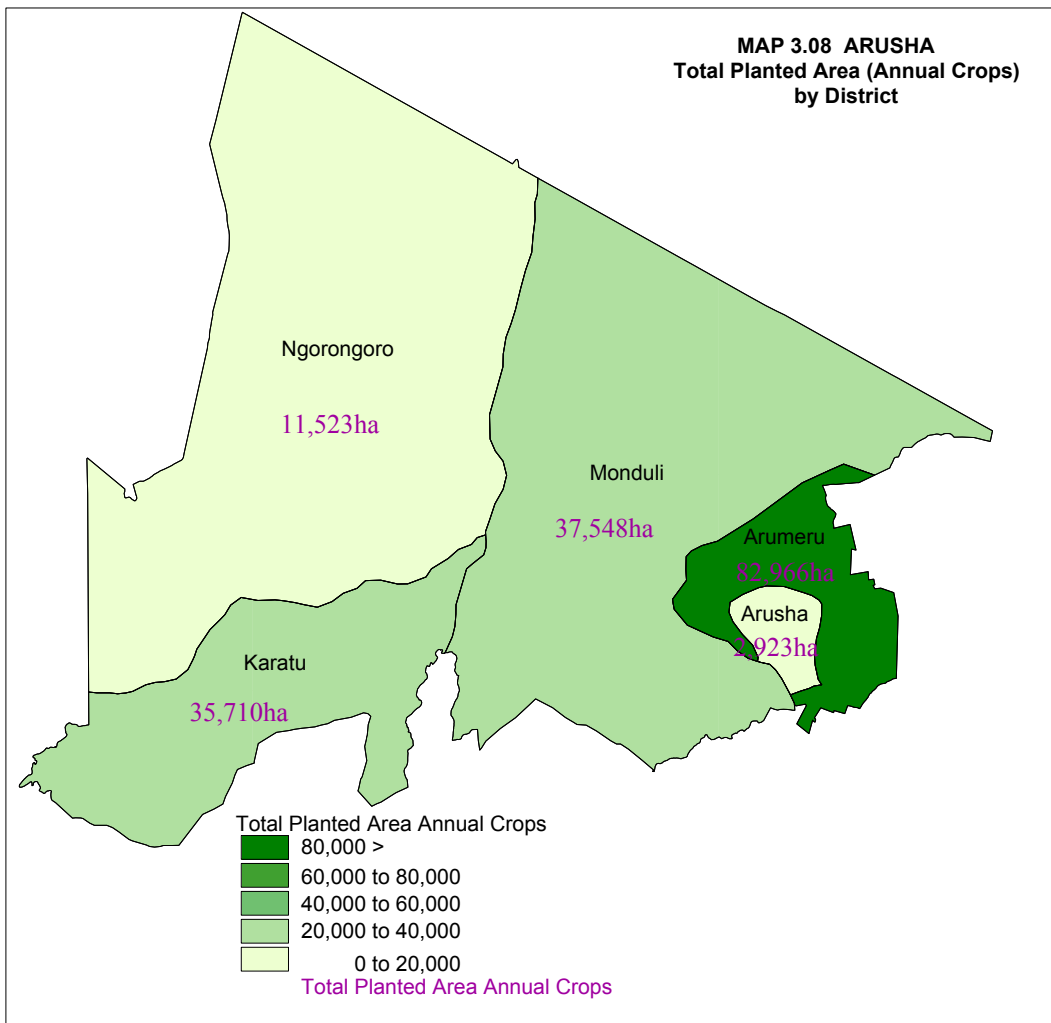
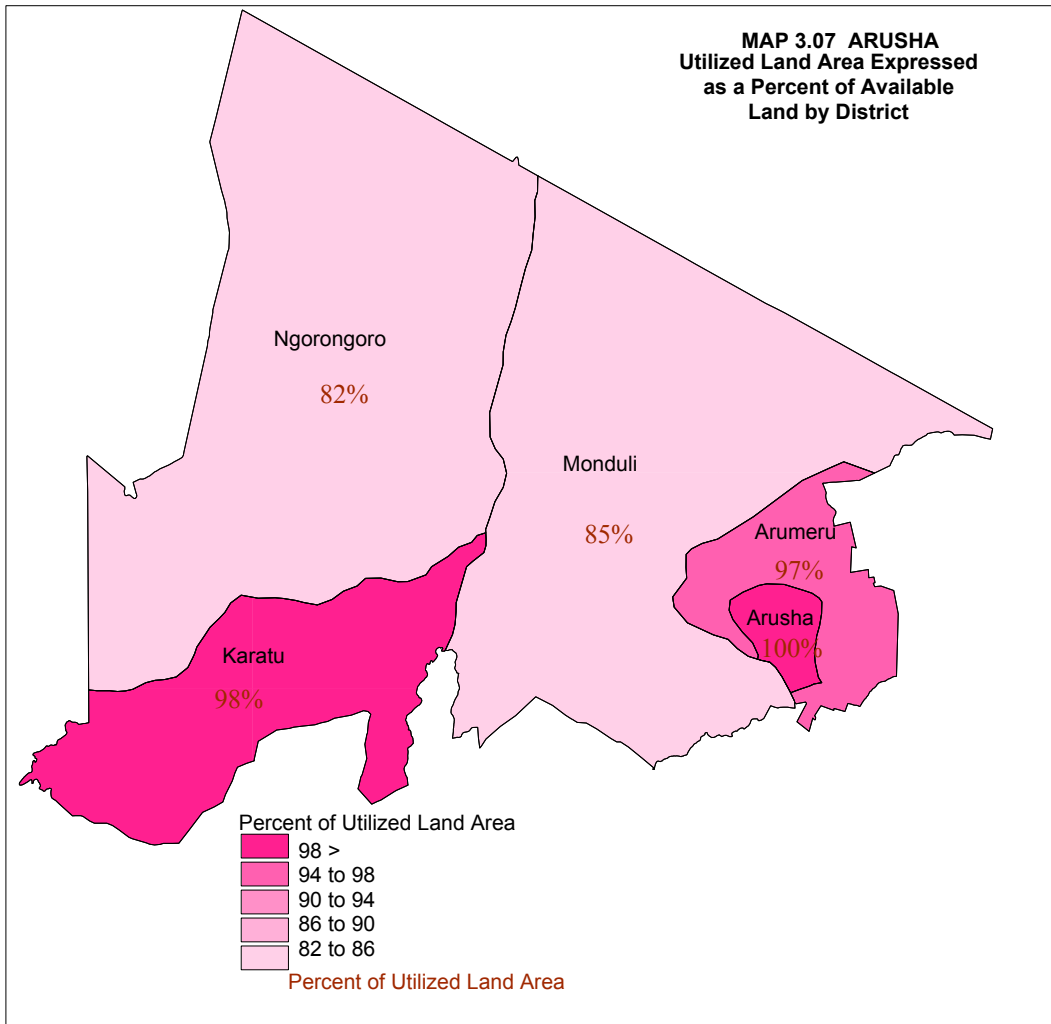


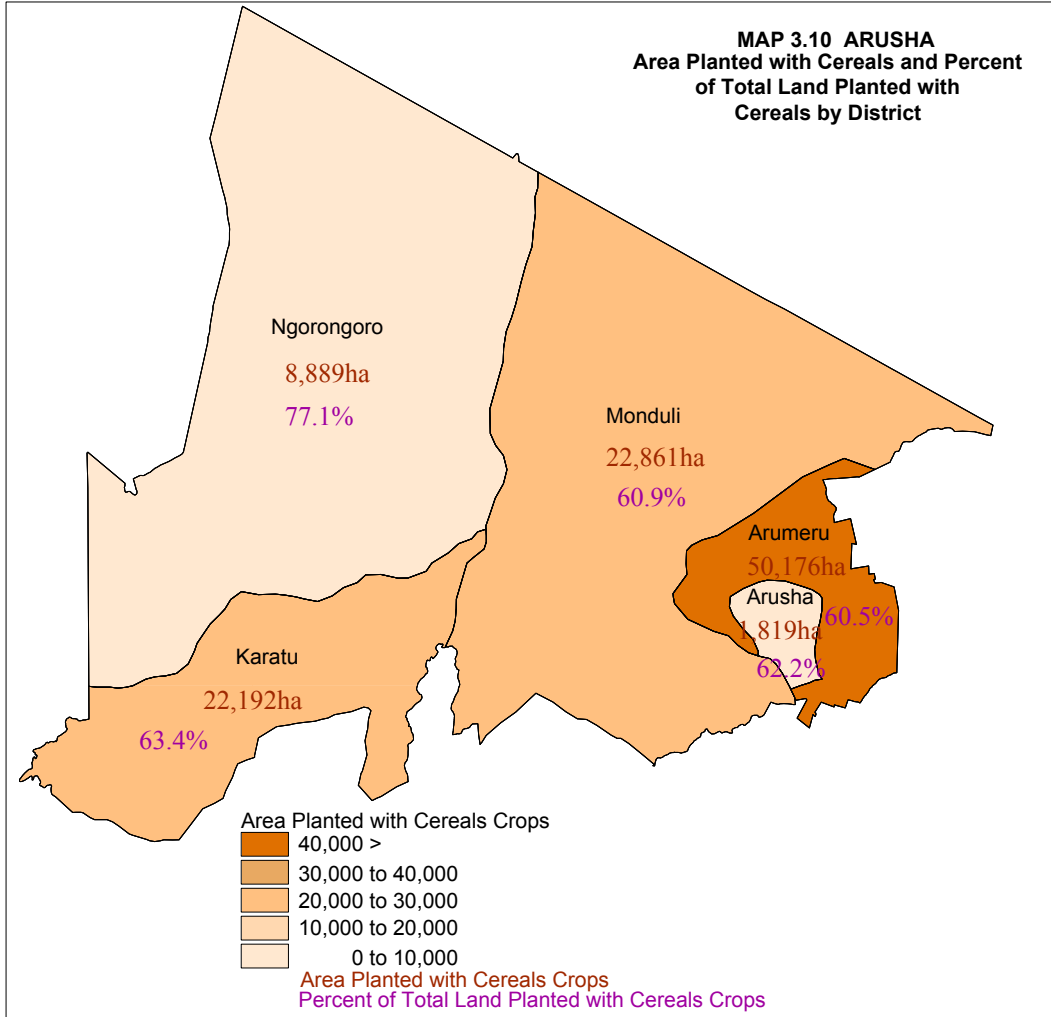
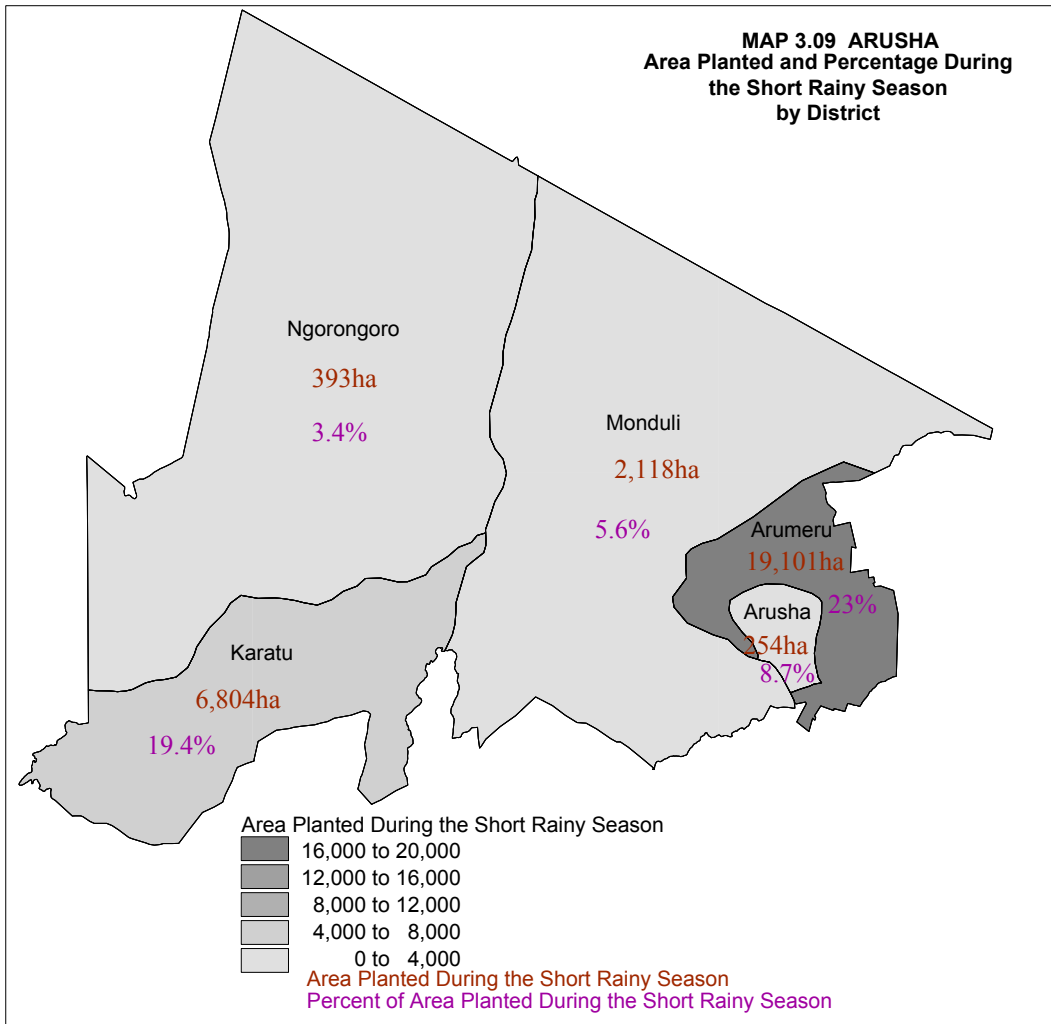
The average areas planted per household during the short and long rainy seasons was 0.4 and 0.6 ha respectively (Chart 3.13). The districts with the largest area planted per household (the average of the two seasons) were Monduli (1.0 ha) followed by Arusha (0.9 ha). The district with the smallest average area planted was Ngorongoro (0.41ha). In all districts the average area planted during the long rainy season is higher than that of the short rainy season (Chart 3.14 and Map 3.8).

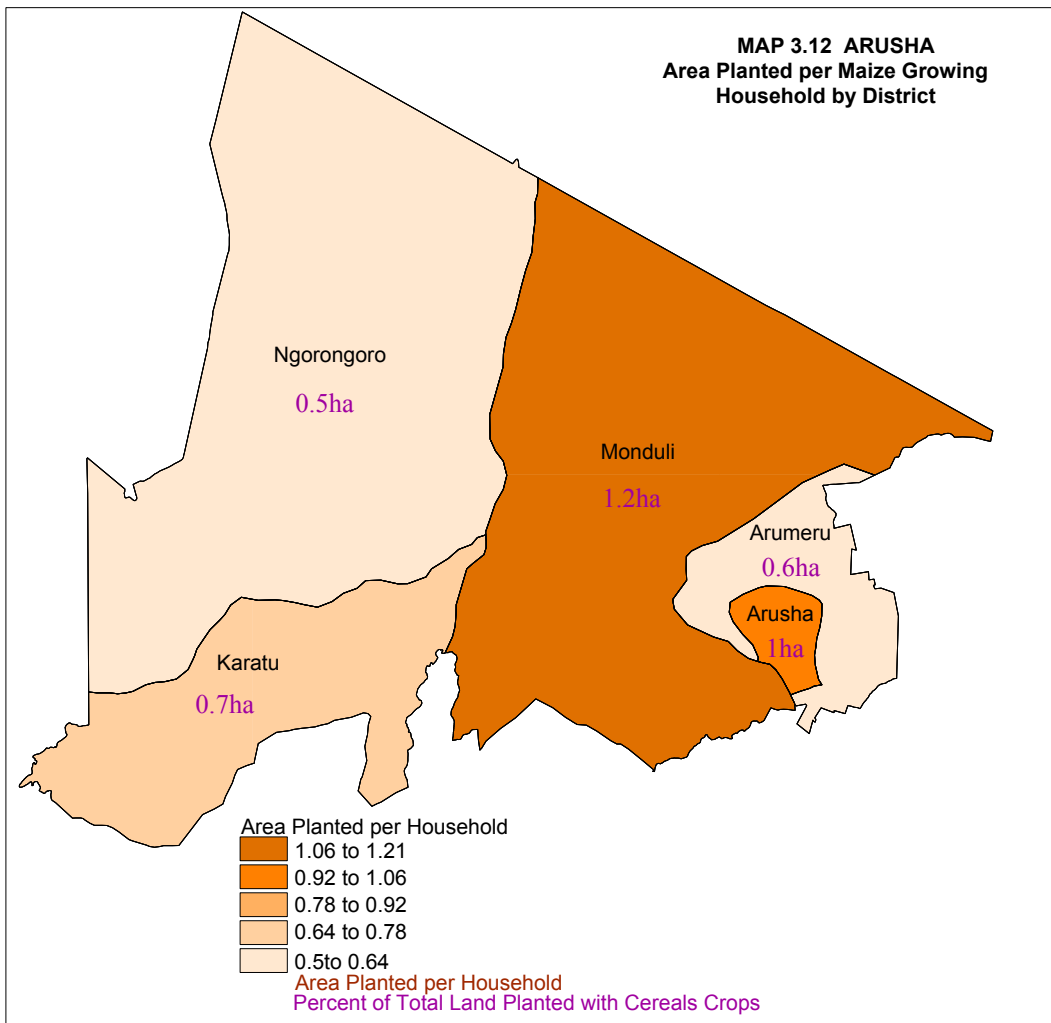
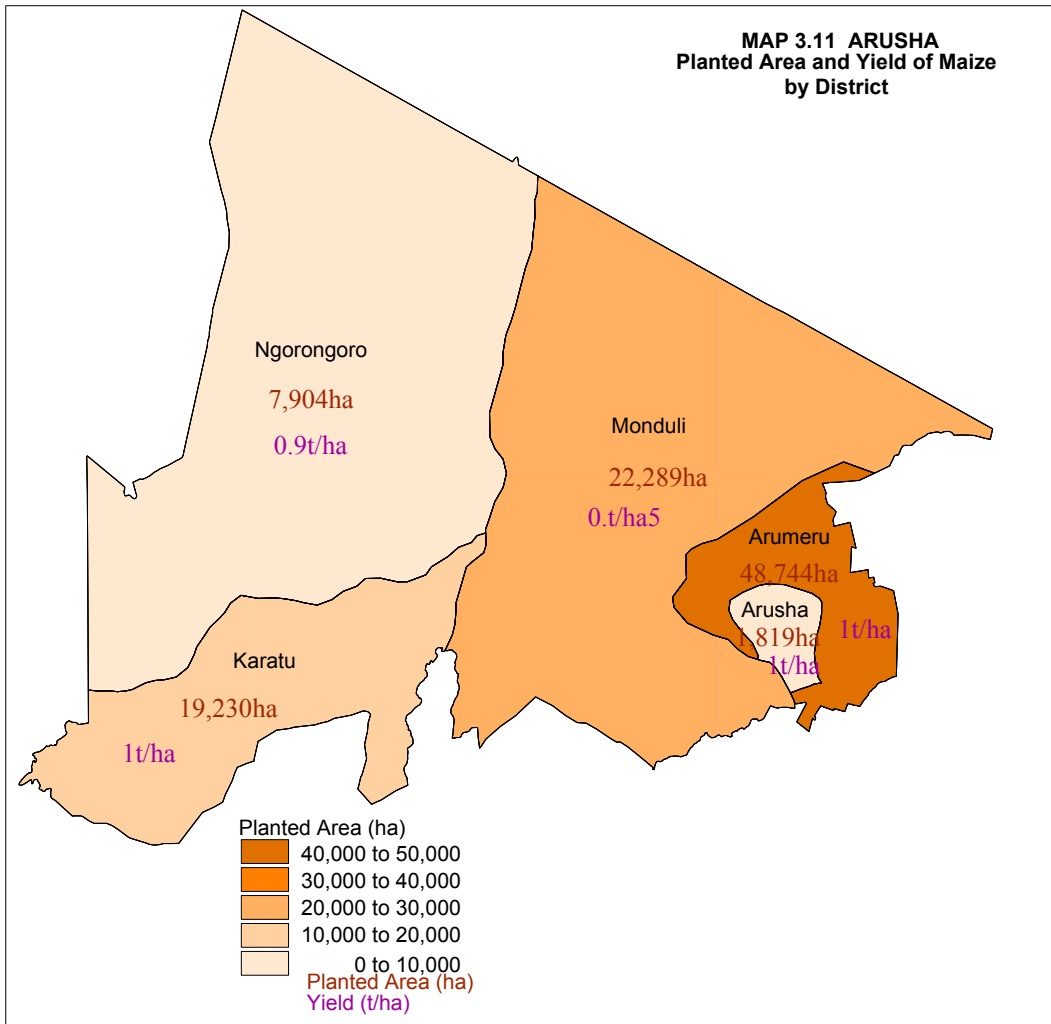


The planted area occupied by cereals was 105,937 ha (62.3% of the total area planted with annuals). This was followed by pulses (54,794 hectares, 32.2%), fruit and vegetables (6,106 hectares, 3.6%), roots and tubers (1,590 hectares, 0.9%), oil seeds (1,172 hectares, 0.7%) and cash crops (377 hectares, 0.2%). The average area planted per household during the long rainy season in Arusha region was 0.59 hectares, however, there were large district differences. Monduli had the largest planted area per household (1.0 ha) followed by Arusha (0.9 ha), Karatu (0.6 ha) and Arumeru (0.5 ha). The smallest planted area per household is in Ngorongoro (0.4 ha). In Arumeru the area planted per household in the short rainy season represents 66.6 percent of the total planted area per household, whereas in Karatu the corresponding figure is 23.7 percent (Chart 3.15 and Map 3.9).





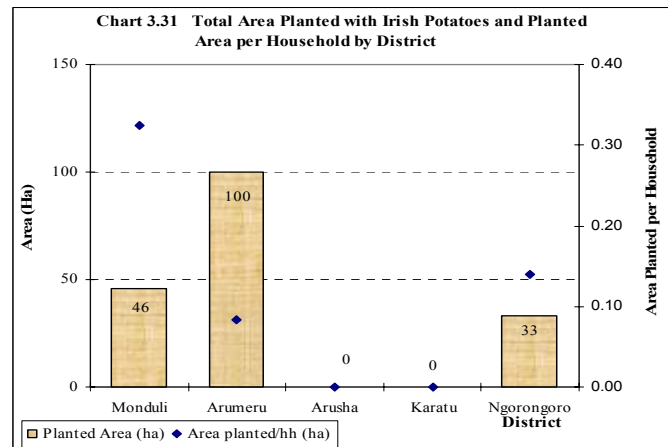
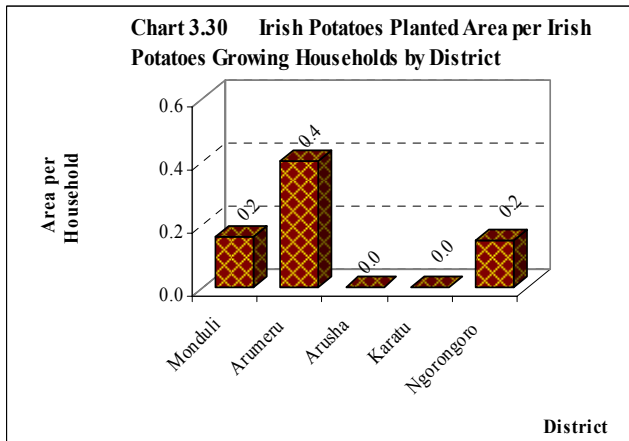




Arumeru District has the largest planted area for Irish potatoes (100 ha, 55.9%), followed by Monduli (46 ha, 25.7%) and Ngorongoro (33 ha, 18.4%). Cassava was not grown in the other districts of Arusha region(Chart 3.31).Other root and tuber crops are of minor important in terms of area planted compared to cassava and Irish potatoes.

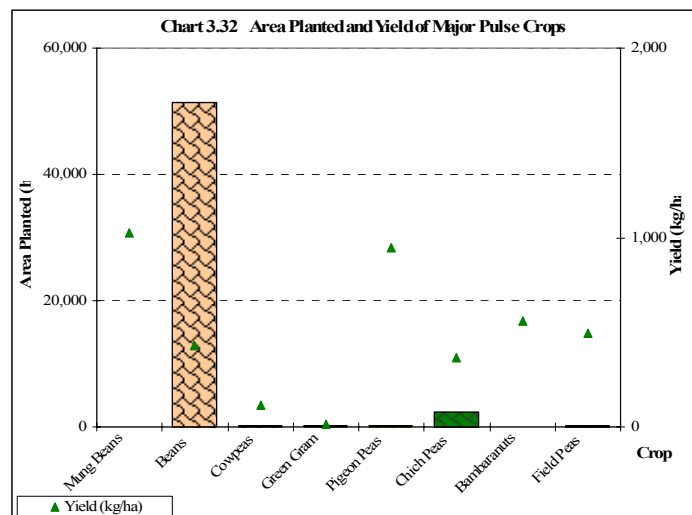
3.3.6 Pulse Crops Production

The total area planted with pulses was 54,794 hectares out of which 51,481 ha were planted with beans (94 percent of the total area planted with pulses), followed by chick peas (2,298 ha, 4.2%). cow peas (263 ha, 0.5%), green grams (235 ha, 0.4%), pigeon peas 173 ha (0.3%), fiels peas 161 ha (0.3%), mung beans 107 ha (0.2%) and bambara nuts 76 ha (0.1%).



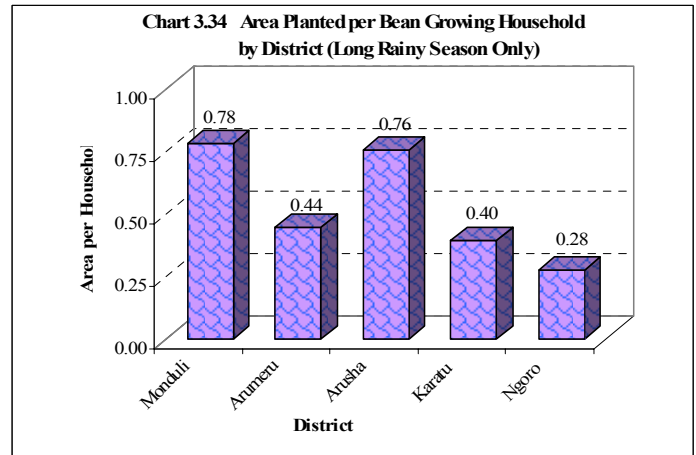
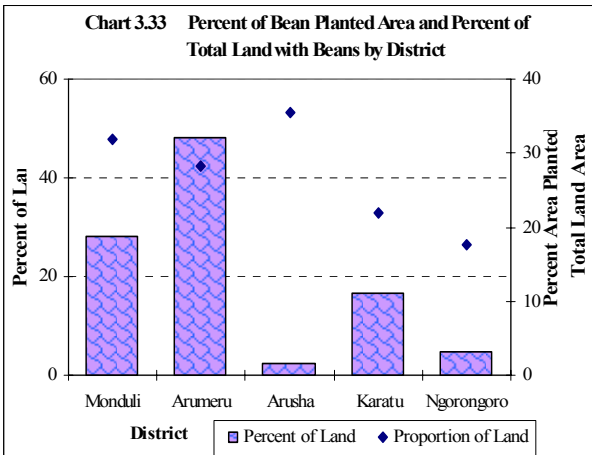
The area planted with pulses in the short rainy season was 9,496 ha which represented 17.3 percent of total area planted with pulses during the year. Beans was the most dominant crop during long rainy season with 42,111 ha (93 % of the total area planted with pulses in that particular season), followed by chick peas (2,298 ha, 5.1%).

The total production of pulses was 23,477 tonnes. Beans were the most cultivated crop producing 22,200 tonnes which accounted for 94.6 percent of the total pulse production. This was followed by chick peas (848t, 3.6%). Mung beans, pigeon peas and bambarra nuts had relatively higher yields of 1,023kg/ha, 945kg/ha and 560 kgs/ha respectively. (Chart 3.32).



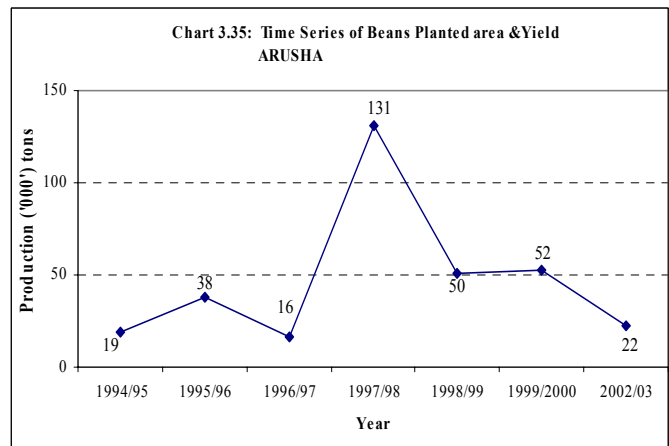
3.3.6.1 Beans

Beans dominate the production of pulse crops in the region. The number of households growing beans in Arusha region was 112,389. The total production of beans in the region was 22,200 tonnes from a planted area of 51,481 hectares resulting in a yield of 0.43 t/ha.

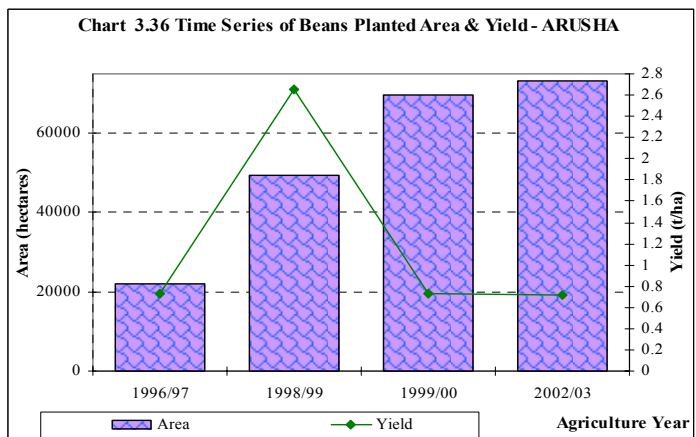


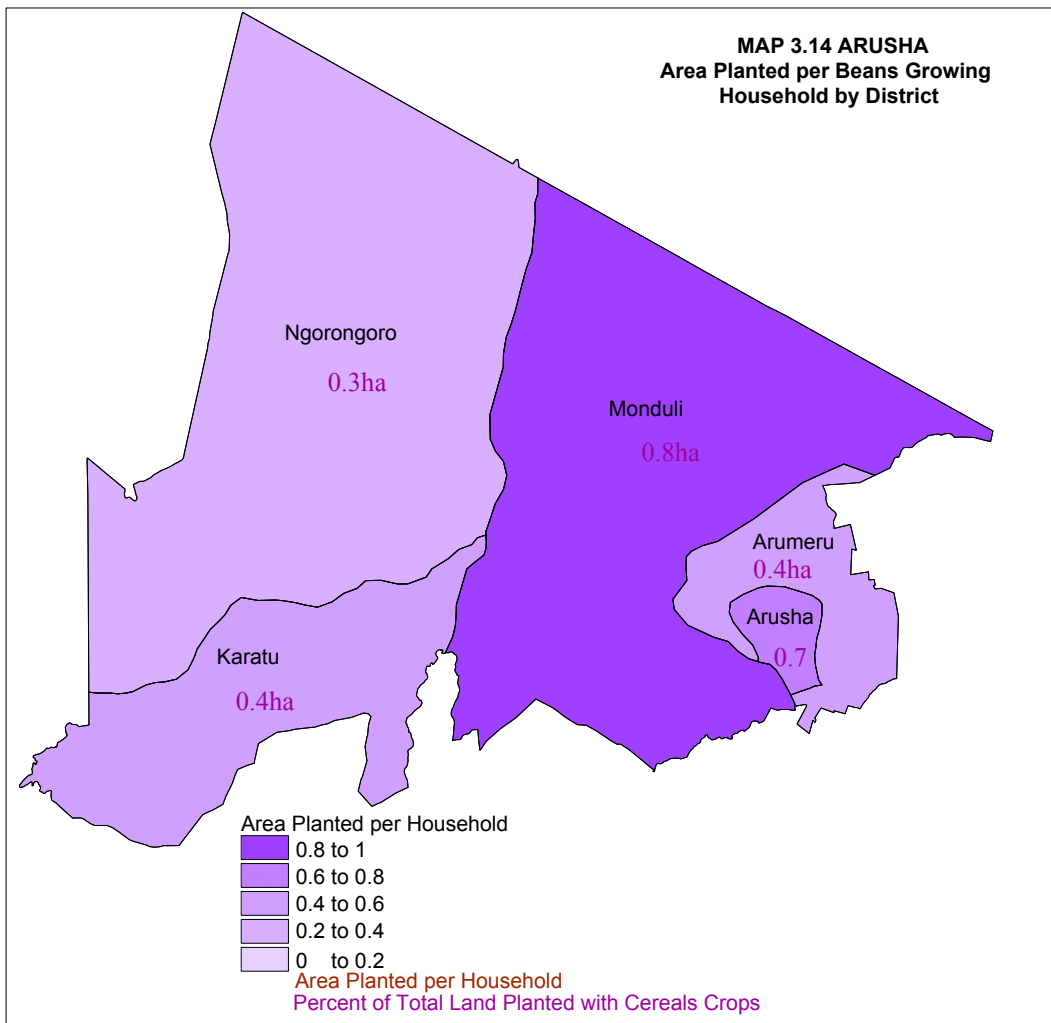
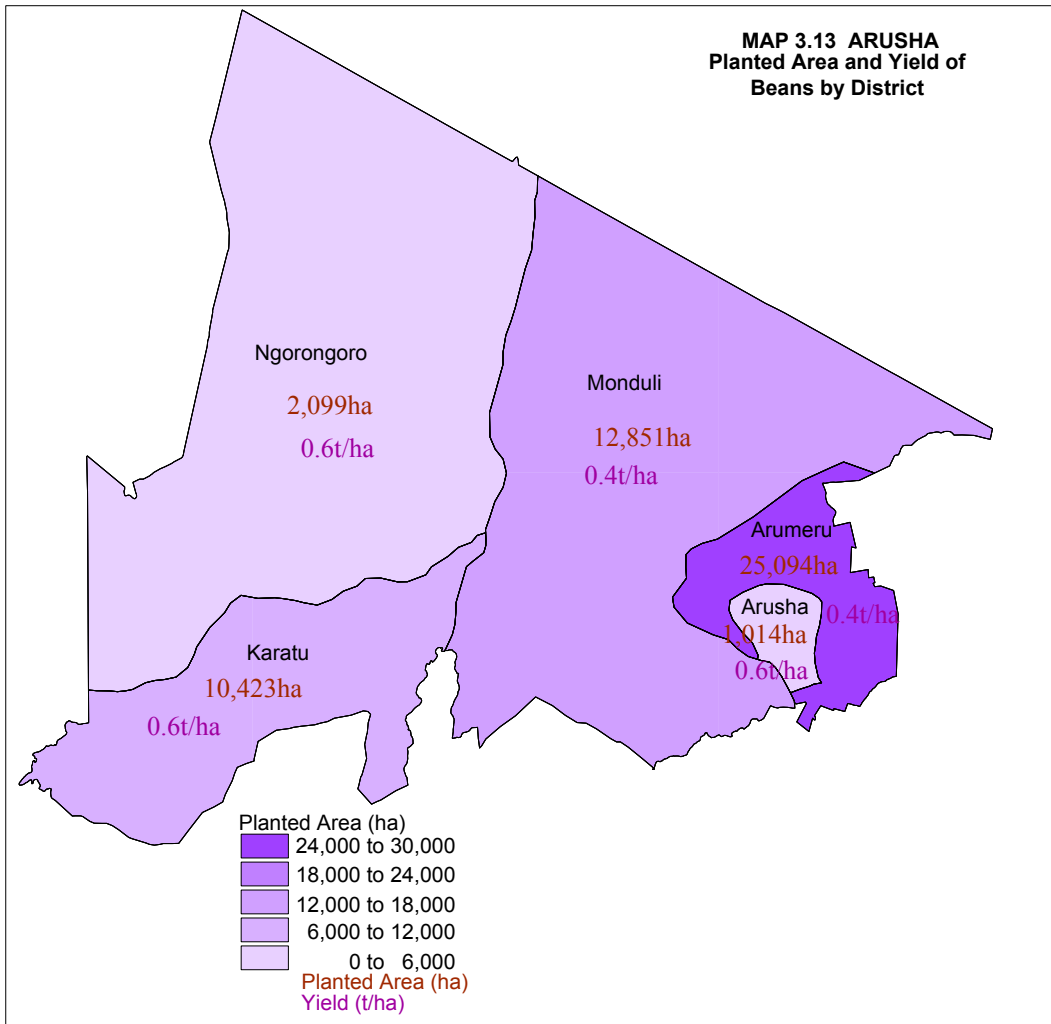
The largest area planted with beans in the region was in Arumeru (20,325 ha, 48%) (Chart 3.33 and Map 3.13), however, the largest area planted with beans per household was in Monduli district (0.78 ha) (Chart 3.34). The average area planted per household in the region during the long rainy season was 0.5 ha. With exception of Monduli and Arusha districts, the variations in area planted with beans for the rest of the districts were small ranging from 0.3 ha in Ngorongoro to 0.4 ha in Arumeru district (Map 3.14).

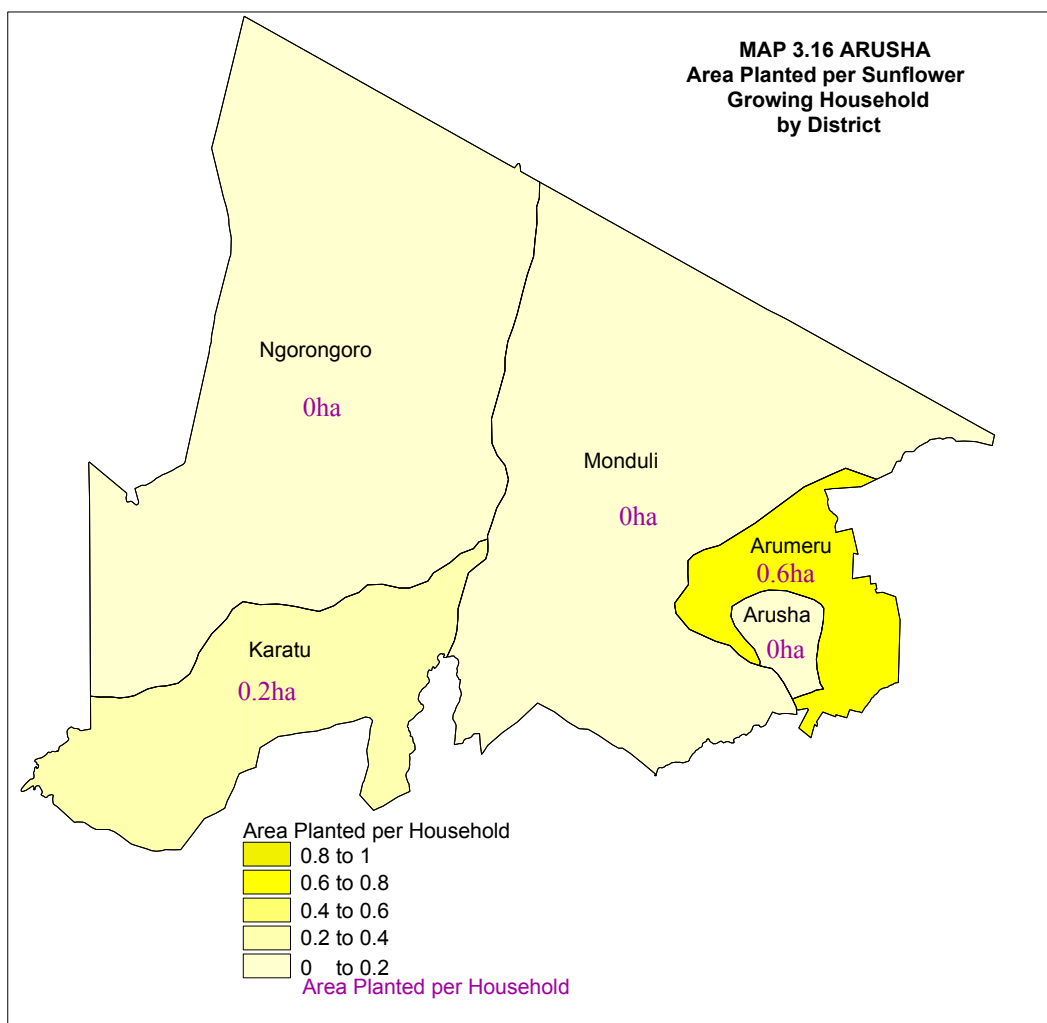
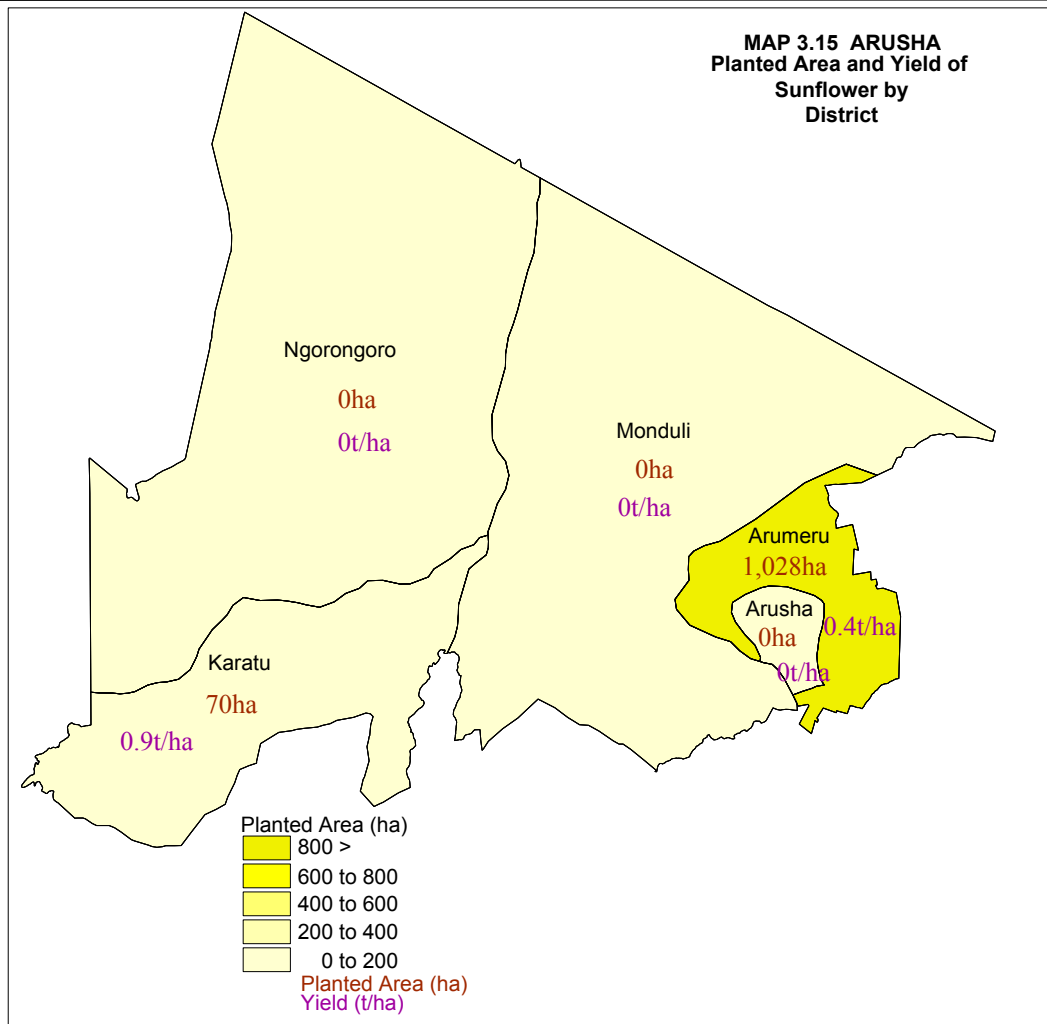
In Arusha region, bean production has increased steadily over the period 1995 to 1998 from 19,000 tonnes in 1995 to 131,000 tonnes in 2003, then decreased to 22,000 tonnes over the period 1998 to 2003 (Chart 3.35).



Charts 3.35 and 3.36 show that, whilst the yield of beans increased over the period 1996 to 1999 then decreased over the period 1999 to 2003, the quantity produced has decreased despite the increase in the area under production. The area planted with beans has increased erratically over the period from 1996 to 2003. Over the period 1997 to 2003 the yield of beans have been fluctuating with higher yield in 1999 (2.7t/ha) and 0.7t/ha in 2003. (Chart 3.36).

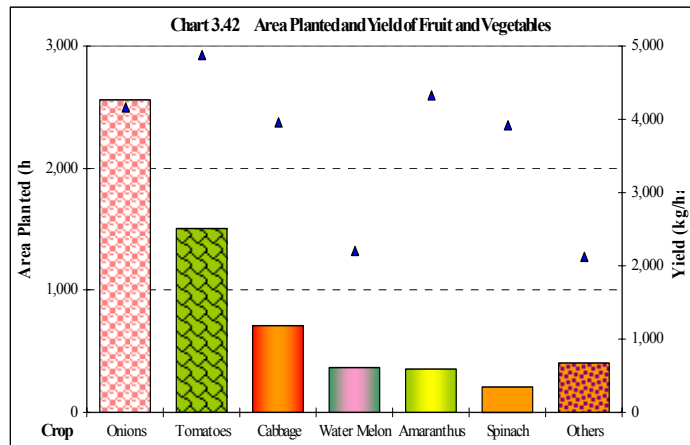






3.3.8 Fruit and Vegetables

The collection of fruit and vegetables production data was difficult due to the small quantities produced per household. Most of the data presented here gives the production of smallholders who grew these crops as cash crops and not merely for household consumption. Most fruit production is from permanent crops and only water melon is reported as an annual crop in this section. The short rainy season is relatively important for fruit and vegetables production since 57 percent of the total area planted with fruit and vegetables was during the short rainy season. For tomatoes over 65 percent of the planted area was during the short rainy season, except for spinach and water melon over 65 percent of the planted area was during the long rainy season. The planted area for cucumber in the short rainy season was very large (100% of the total planted area was in the short rainy season). Reliable historical data for time series analysis of fruit and vegetables were not available.

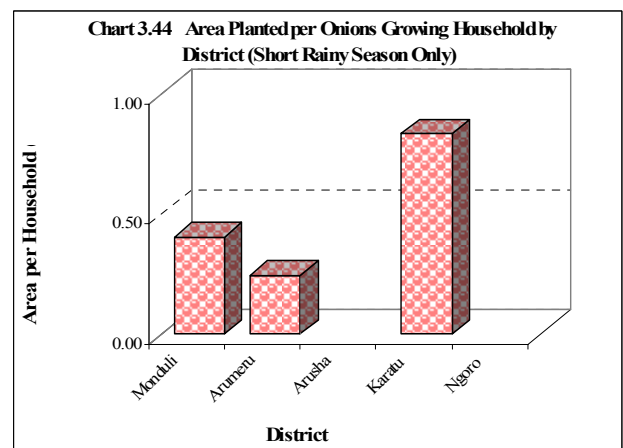
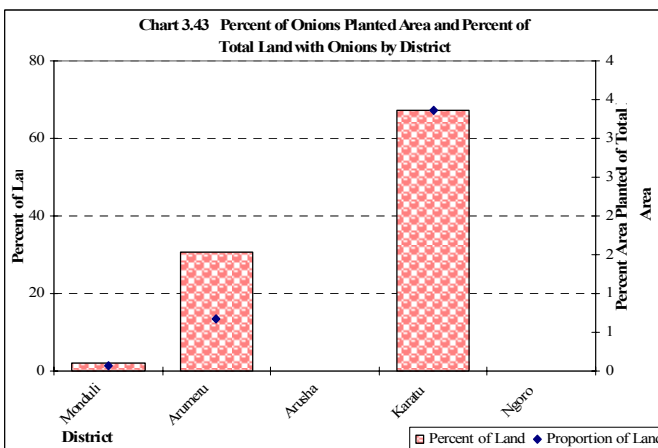


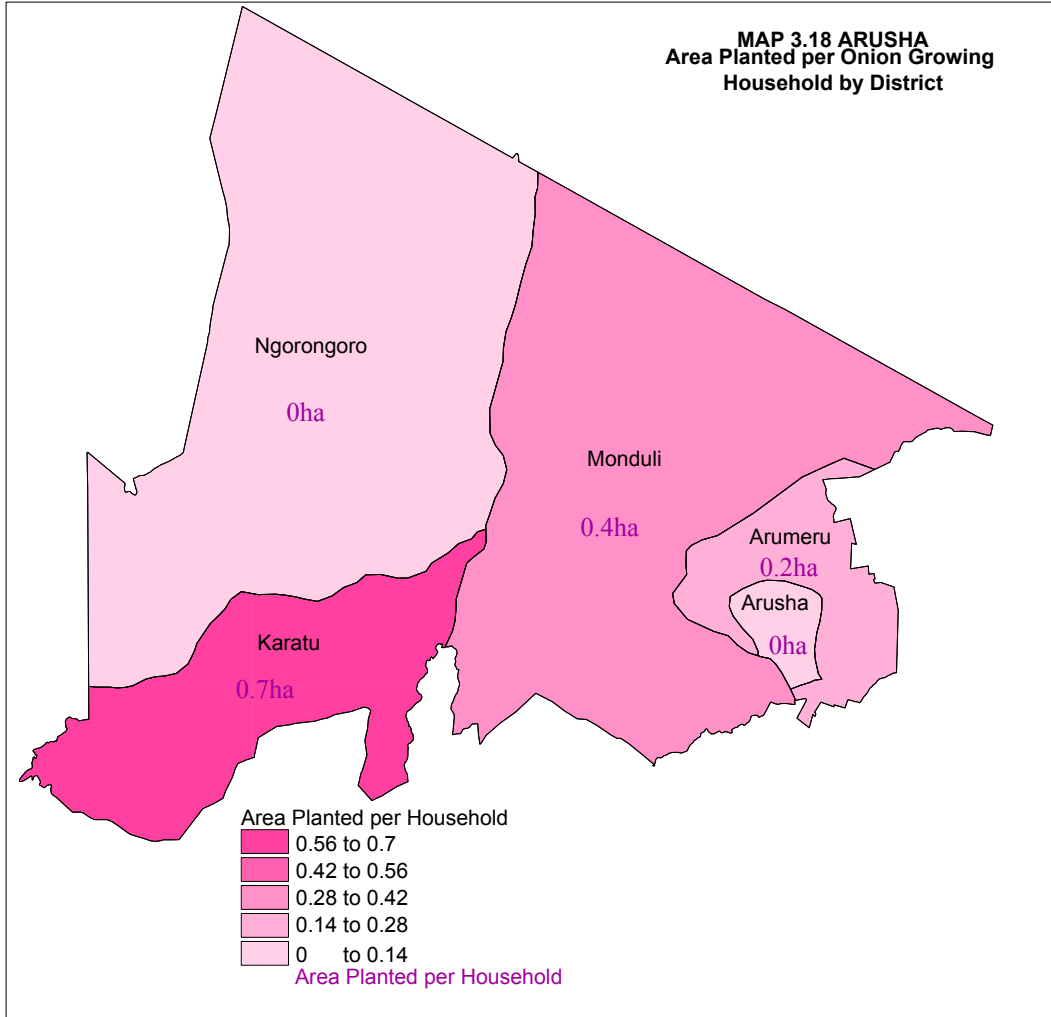
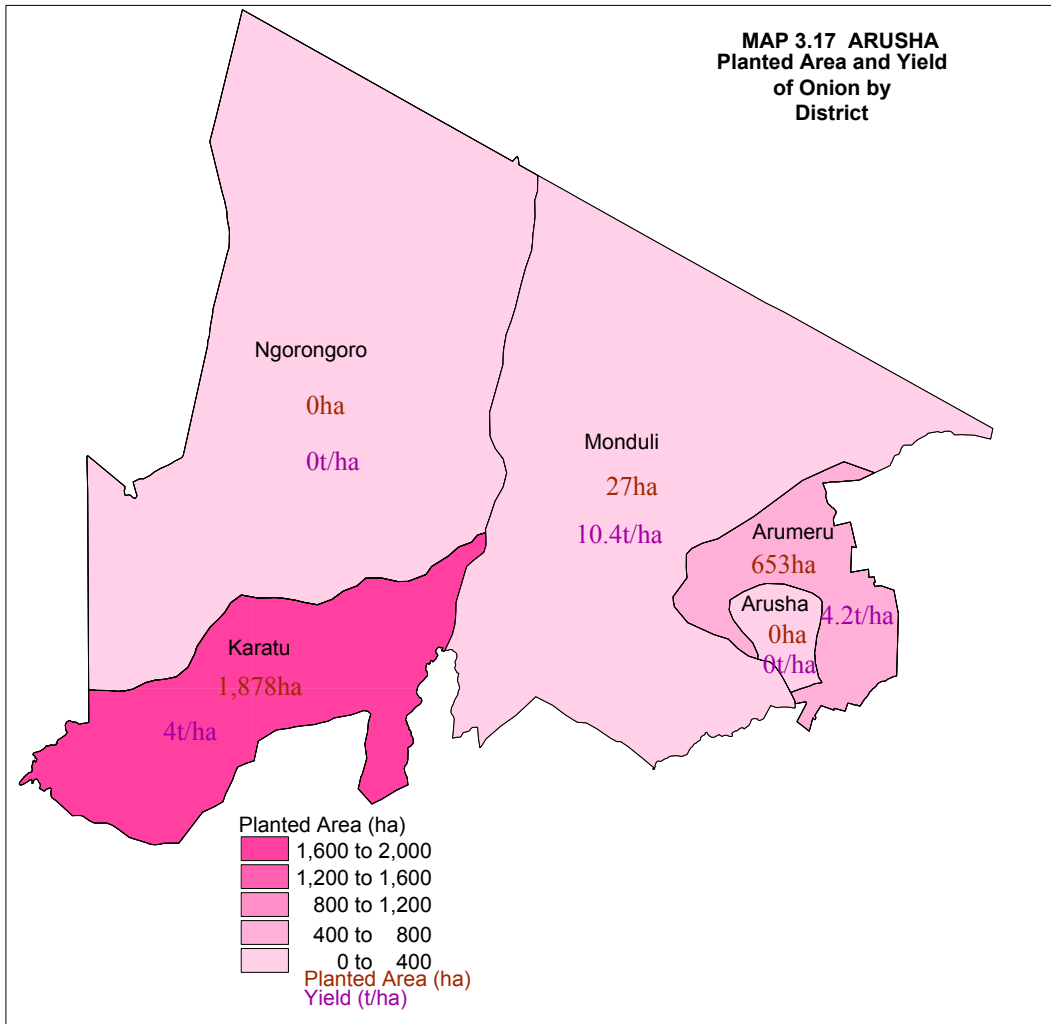
The total production of fruits and vegetables was 26,064 tonnes. The most cultivated fruit and vegetable crop was onions with a production of 10,656 tonnes (41% of the total fruit and vegetables produced) followed by tomatoes (7,340t, 28%) cabbage (2,813t, 11%), amaranthus (1,528t, 6%) and chillies (1,391t, 5%). The production of the other fruit and vegetables was relatively small (Table 3.6).

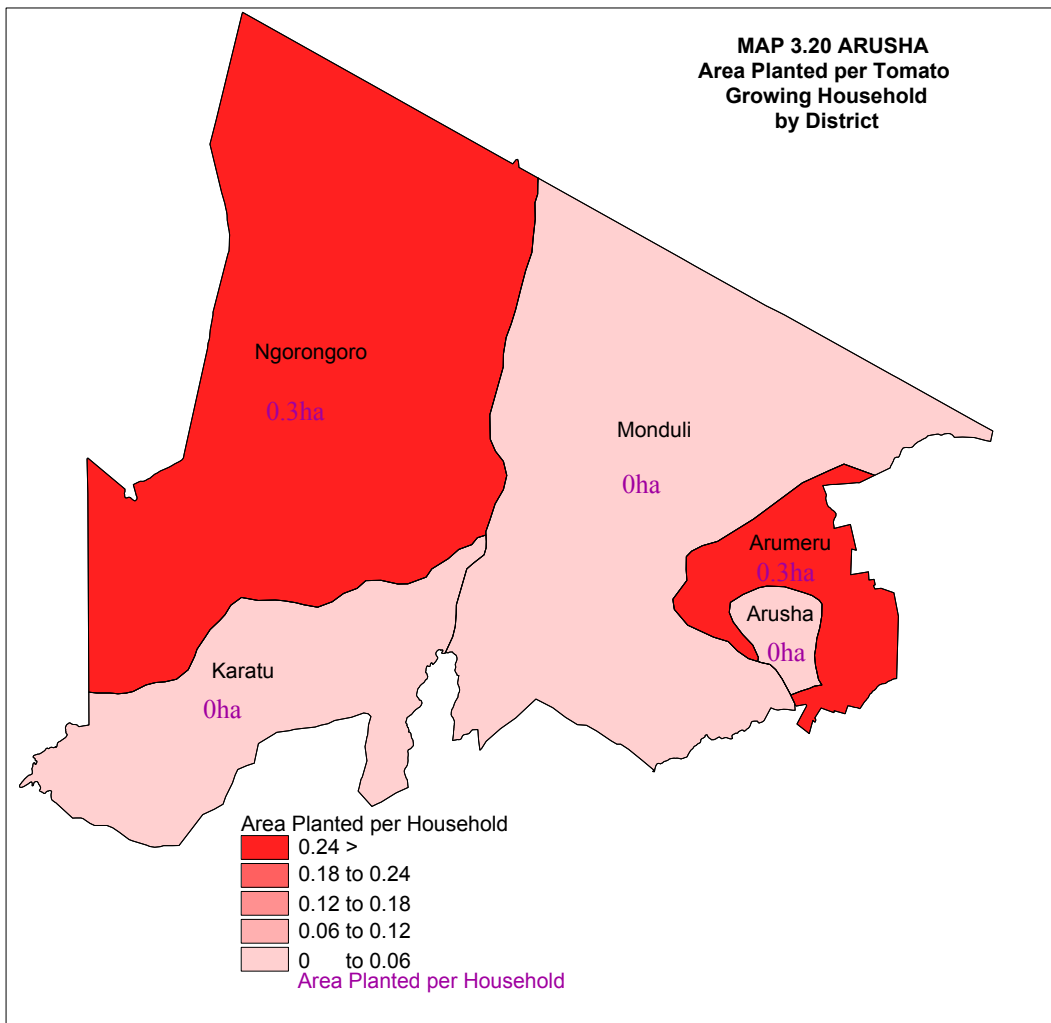
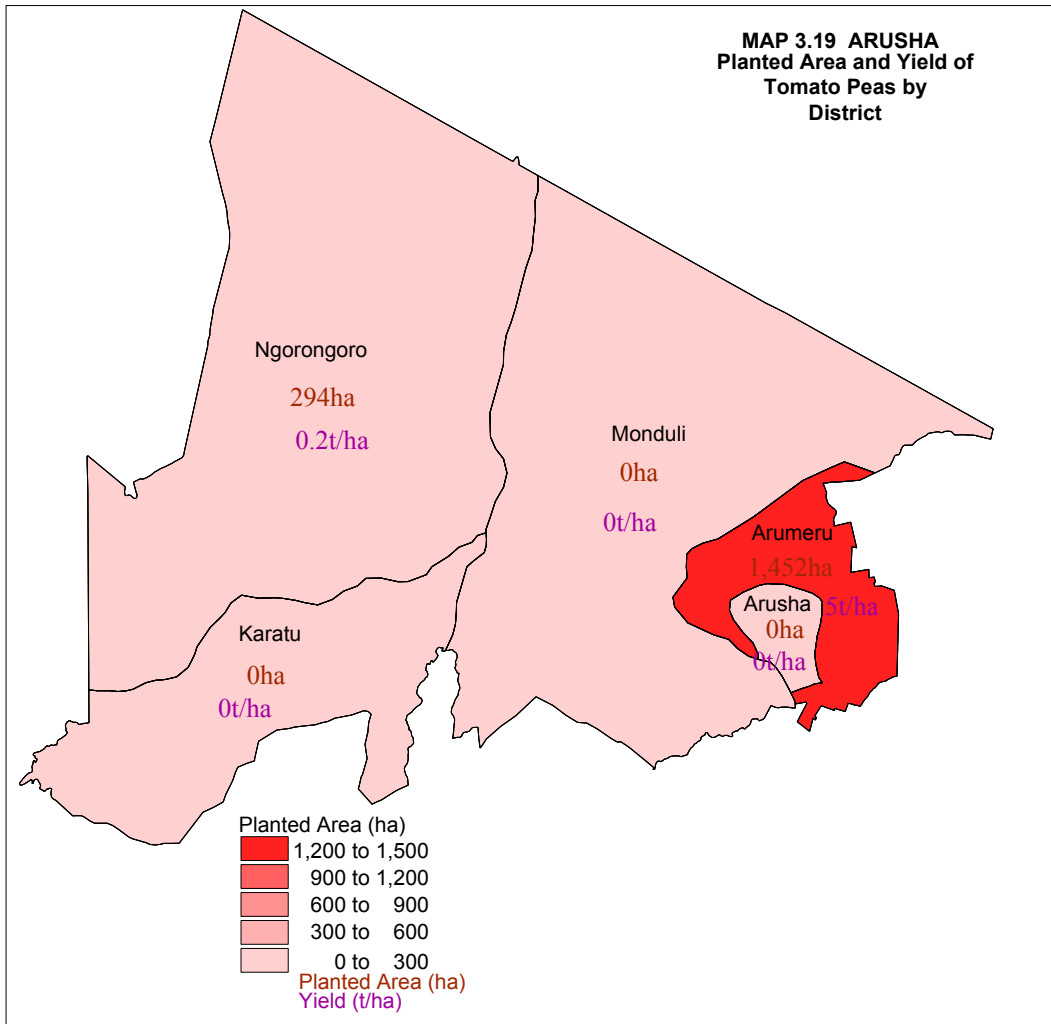
The yield of tomatoes was 4,225 kg/ha, cabbage (4,105 kg/ha), water melon (3,634 kg/ha) and pumpkins (3,384 kg/ha). Radish and spinach had yields of 529 and 251 kg/ha respectively (Chart 3.42).

3.3.8.1 Onions

The number of households growing onions in the region during the long rainy season was 2,426 and 2,955 in the short rainy season. This represented 1.0 percent of the total crop growing households in the region in the long rainy season and 4.0 percent in the short rainy season. Karatu district had the largest planted area of onions (73.4% of the total area planted with onions in the region), followed by Arumeru (25.5%) and Monduli (1.1%). There was no production of onions in other districts in Arusha region (Map 3.17).



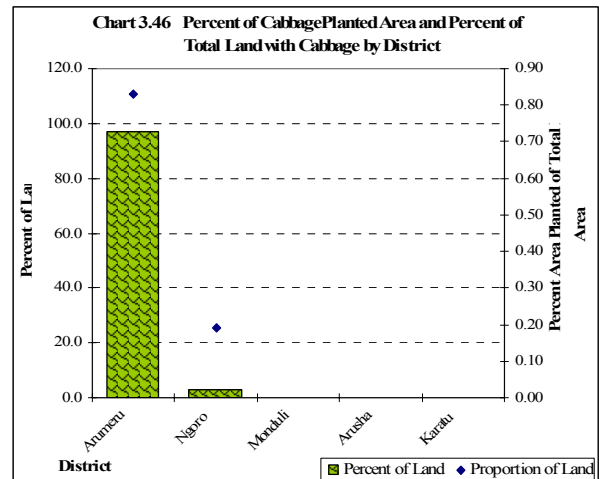




3.3.8.3 Cabbage

The number of households growing cabbage in the region during the long rainy season was 836 households and 1,205 in the short rainy season. This represents 0.49 percent of the total crop growing households in the region in the long rainy season and 0.71 percent in the short rainy season.

Arumeru district had the largest planted area of cabbage (688 ha, 96.9% of the total area planted with cabbage in the region), followed by Ngorongoro (22 ha, 3.1%). Cabbages are not produced in Monduli, Arusha and Karatu districts. The largest proportion of the area planted with cabbage was found in Arumeru district (0.83%), and Ngorongoro (0.19%) (Chart 3.46).



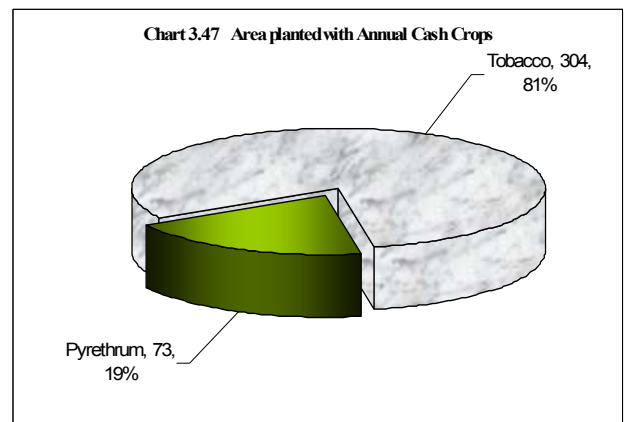
The total area planted with cabbage accounted for 0.42 percent of the total area planted with annual crops and vegetables during the short and long rainy seasons.

3.3.9 Other Annual Crop Production

Most of the other annual crops are cash crops. An area of 377 ha was planted with other annual crops and tobacco and pyrethrum were the only cash crops grown in Arusha in both seasons. The area planted with annual cash crops in short rainy season was 82 ha which represents 21.7 percent of the total area planted with other annual cash crops in short and long rainy season.

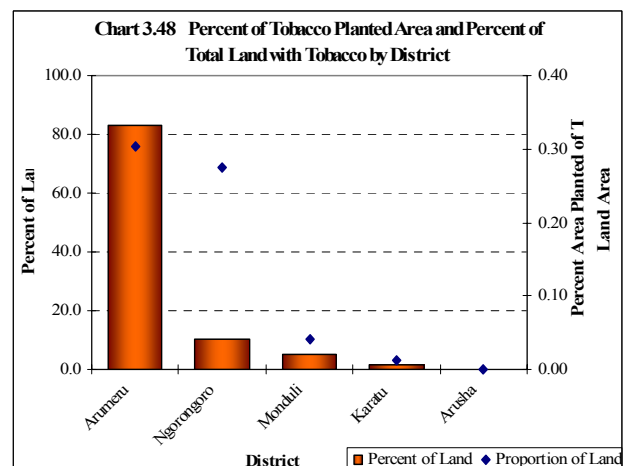
3.3.9.1 Pyrethrum

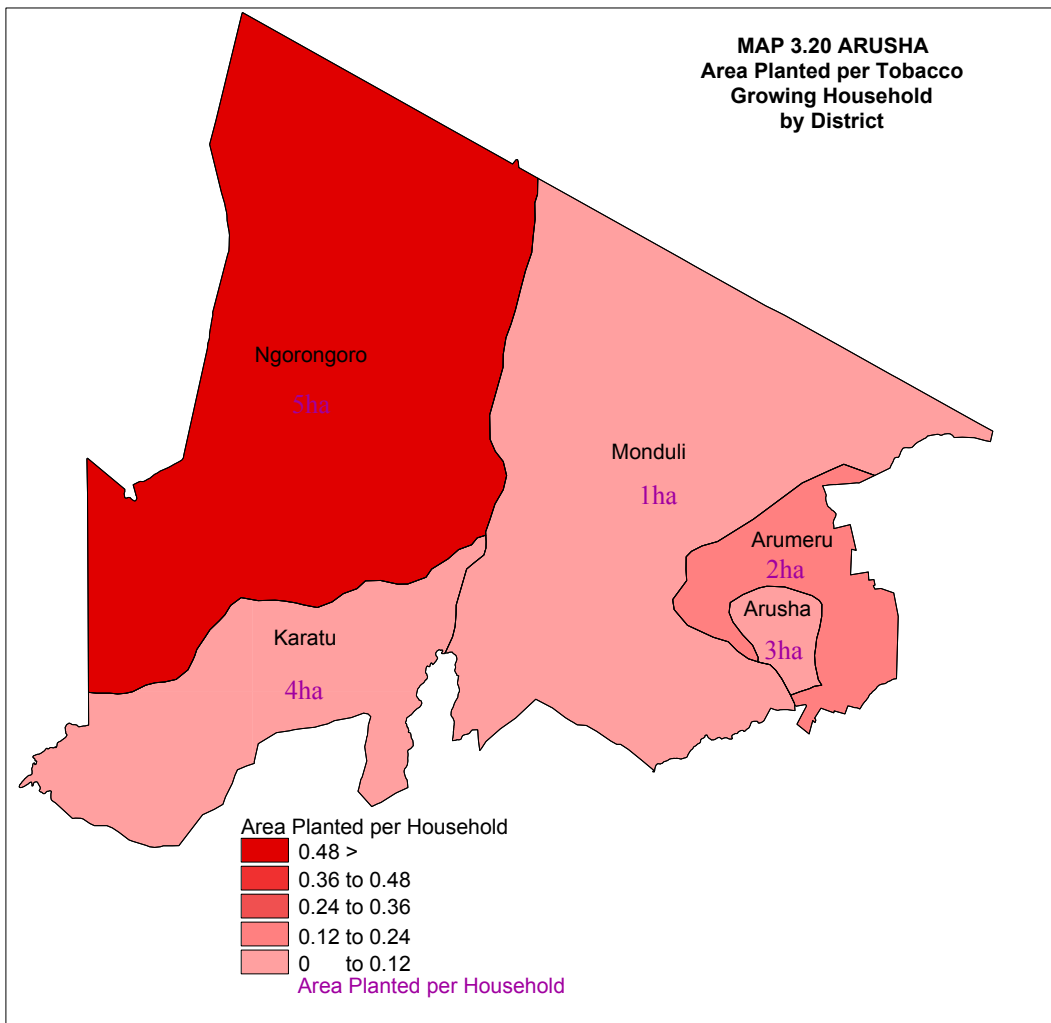
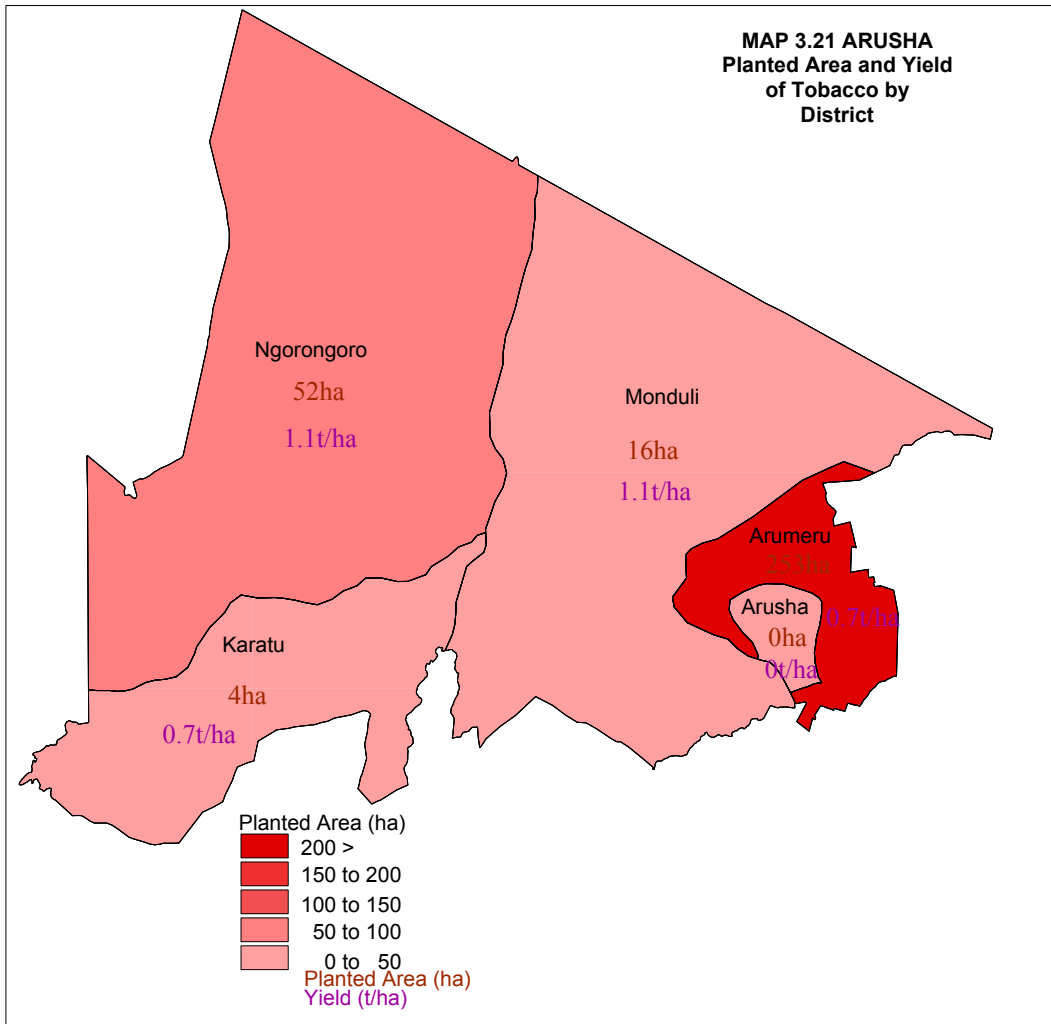
Only 18 tonnes of pyrethrum was produced in Arusha Region on a planted area of 73 ha. It was produced during the short rainy season only. The crop is grown in Arumeru district only and only 0.4 ha was grown per household.



3.3.9.2 Tobacco

The quantity of tobacco produced was 240 tonnes. Tobacco had a planted area of 304 ha, most of which was planted in the long rainy season. Tobacco production is concentrated in 1 district with Arumeru having the largest planted area (83.1% of total area planted with tobacco in the region), followed by Ngorongoro (10.4%), Monduli (5.1%) and Karatu 1.4%) (Chart 3.48) (Map 3.21 and 3.22).

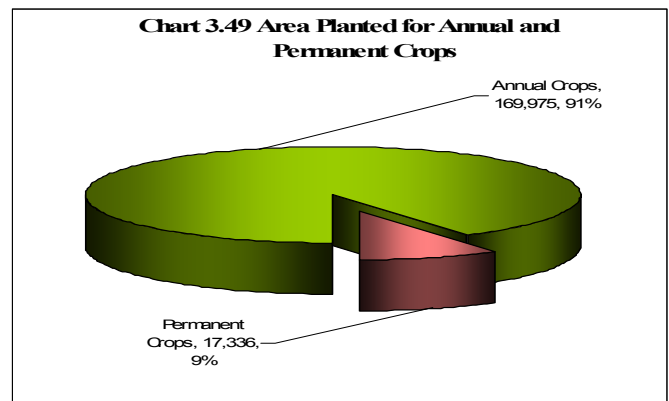




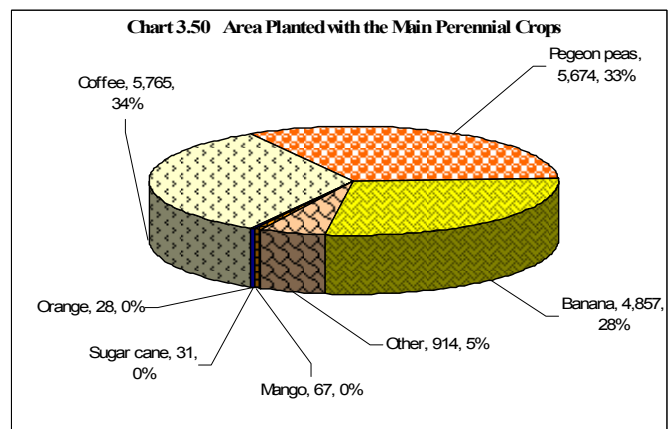
3.4 Permanent Crops

Permanent crops (sometimes referred as permanent crops) are crops that normally take over a year to mature and once mature can be harvest for a number of years. For most crops, it is easy to determine if they are annual or permanent. However, for crops like cassava and bananas the distinction is not so clear. Cassava has varieties that mature within a year and produces only one harvest, whilst other varieties survive for more than one year and produce several harvests. In this census, cassava was treated as an annual crop. Conversely, bananas normally take less than a year to mature, survive for more than one year and are thus treated as a permanent crop. In this report the agriculture census results are presented for the most important permanent crops in terms of production, yield and area planted. Previous censuses and surveys did not measure these variables for permanent crops, therefore no time series analysis is made in this section.

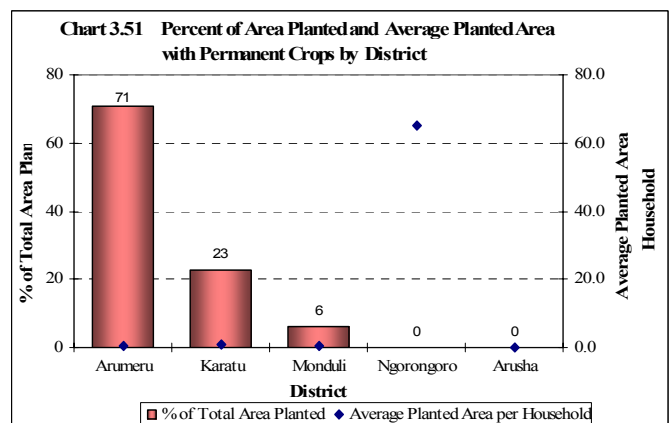
The area of smallholders planted with permanent crops was 17,336 hectares (10.2% of the area planted with annual crops in the region). However, the area planted with annual crops is not the actual physical land area as it includes the area planted more than once on the same land, whilst for the planted area for permanent crops is the same as physical planted land area. So the percentage physical area planted with permanent crops would be higher than indicated in Chart 3.49.



The most important permanent crops in Arusha region are coffee and pigeon peas which account for a planted area of 5,765 ha (33.3%) and 5,674 ha (32.7) respectively, of the planted area of all permanent crops) followed by bananas (4,857 ha, 28.0%) and others (914 ha, 5%). Each of the remaining permanent crops had an area of less than 5 percent of the total area planted with permanent crops (Chart 3.50).



Arumeru district had the largest area under smallholder permanent crops (12,285 ha, 71%). This is followed by Karatu (3,969 ha, 23%) and Monduli (1,059 ha, 6%). However, Karatu had the largest area per permanent crop growing household (0.7 ha) followed by Monduli (0.6 ha), Arumeru (0.2 ha), Arusha (0.2 ha), and Ngorongoro (0.1 ha) (Chart 3.51).

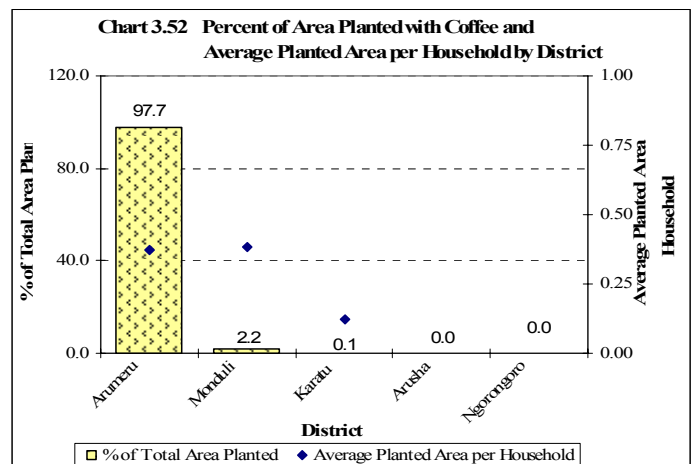


In terms of area of permanent crops planted expressed as a percentage of the total area planted with crops per district, Arumeru had the highest (12.9%) followed by Karatu (10.2%)

3.4.1 Coffee

The total production of coffee by smallholders was 3,089 tonnes. In terms of area planted, coffee was the most important permanent crop grown by smallholders in the region. They were grown by 15,552 households (8.3% of the total crop growing households). The average area planted with coffee per household was relatively small at around 0.37ha per coffee growing household and the average yield obtained by smallholders was 536 kg/ha from a harvest area of 5,024 hectares.

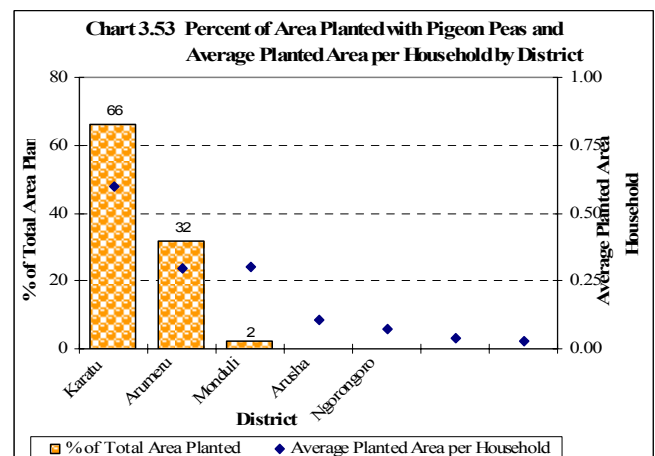
Arumeru had the largest area of coffee in the region (5633 ha, 97.7%) followed by Monduli (124 ha, 2.2%) and Karatu (8 ha, 0.1%). There was no coffee production in Arusha and Ngorongoro districts (Map 3.23). However, the average area planted with coffee per coffee growing household was highest in Monduli (0.38 ha) followed by Arumeru (0.37 ha). (Chart 3.52 and Map 3.24).



3.4.2 Pigeon Peas

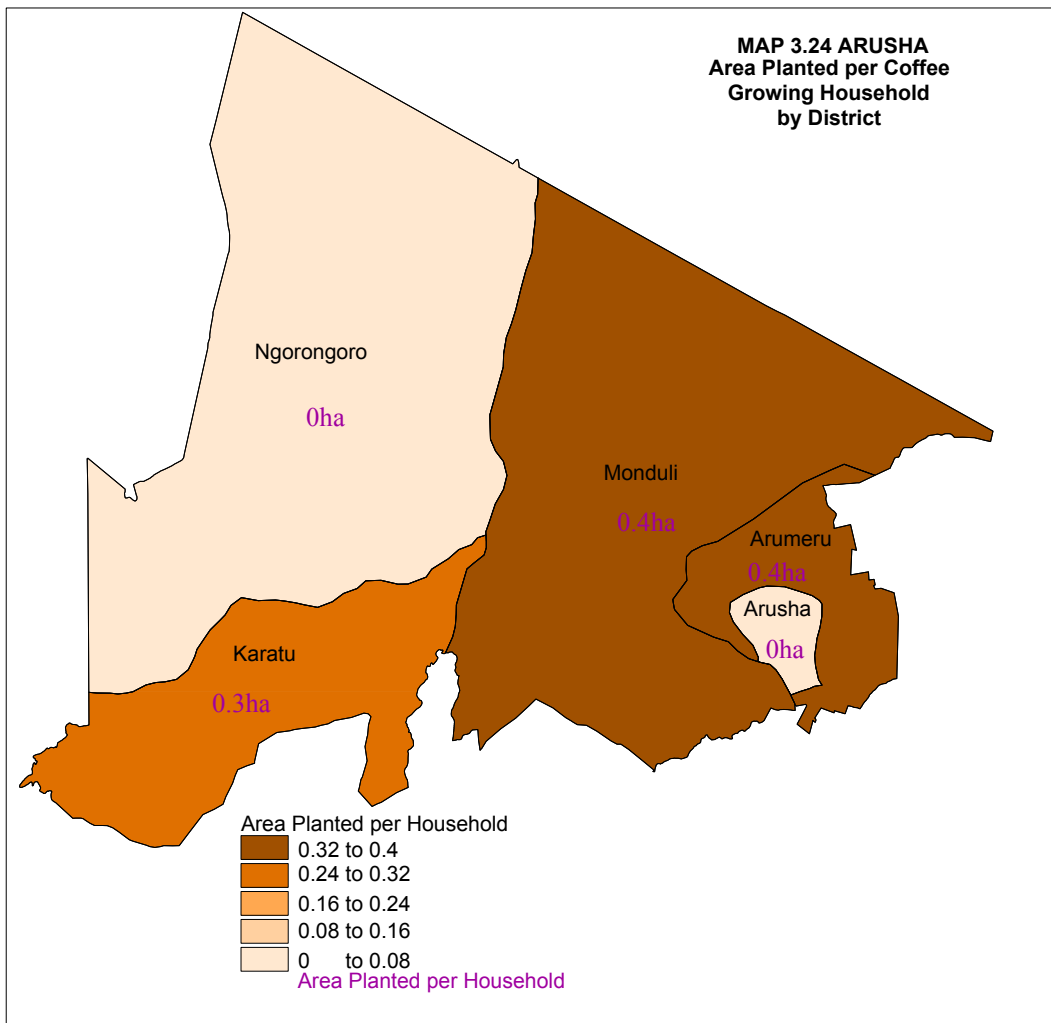
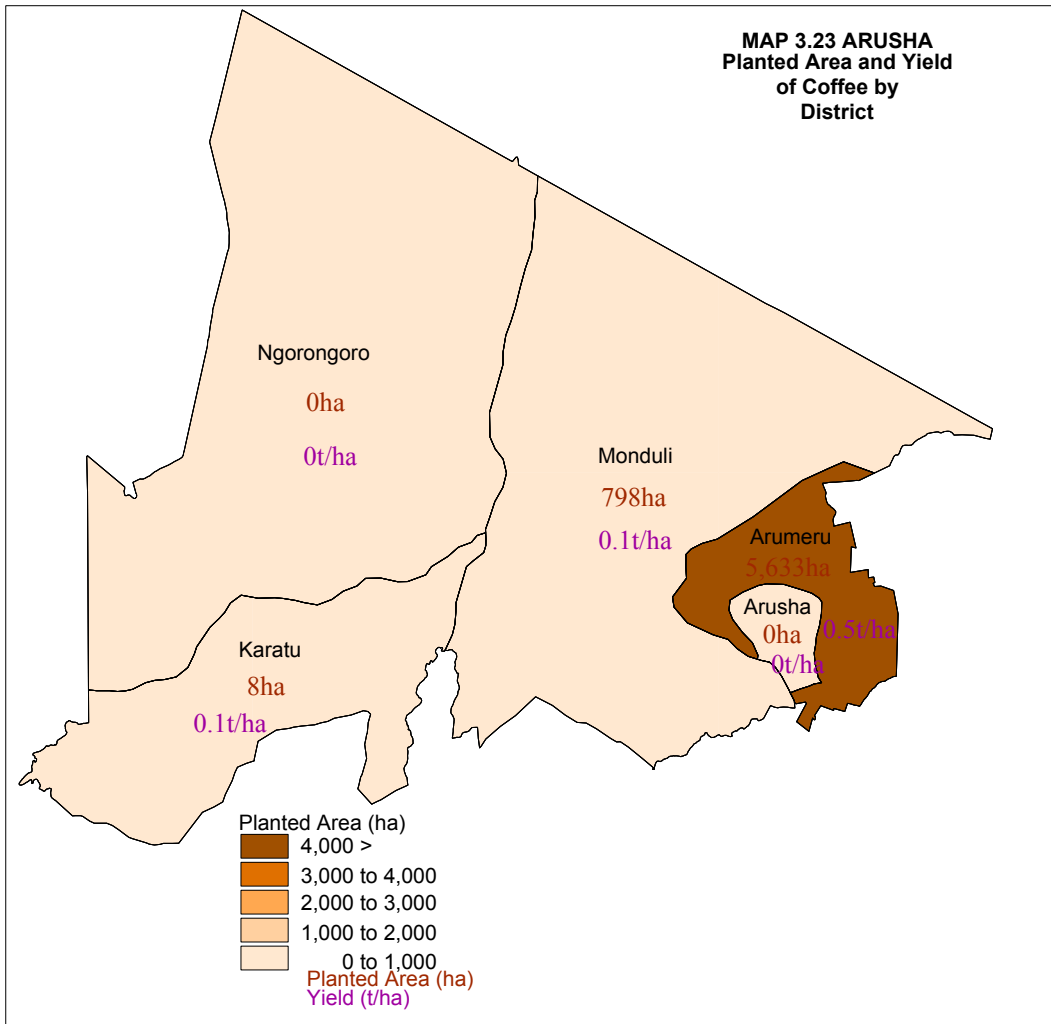
The total production of pigeon peas by smallholders was 2,182 tonnes. In terms of area planted, pigeon peas were the second most important permanent crop grown by smallholders in the region. It was grown by 7,514 households (2.4% of the total crop growing households). The average area planted with pigeon peas per household was 0.76 ha per pigeon peas growing households and the average yield obtained by smallholders was 385 kg/ha from a harvest area of 2,697 hectares.

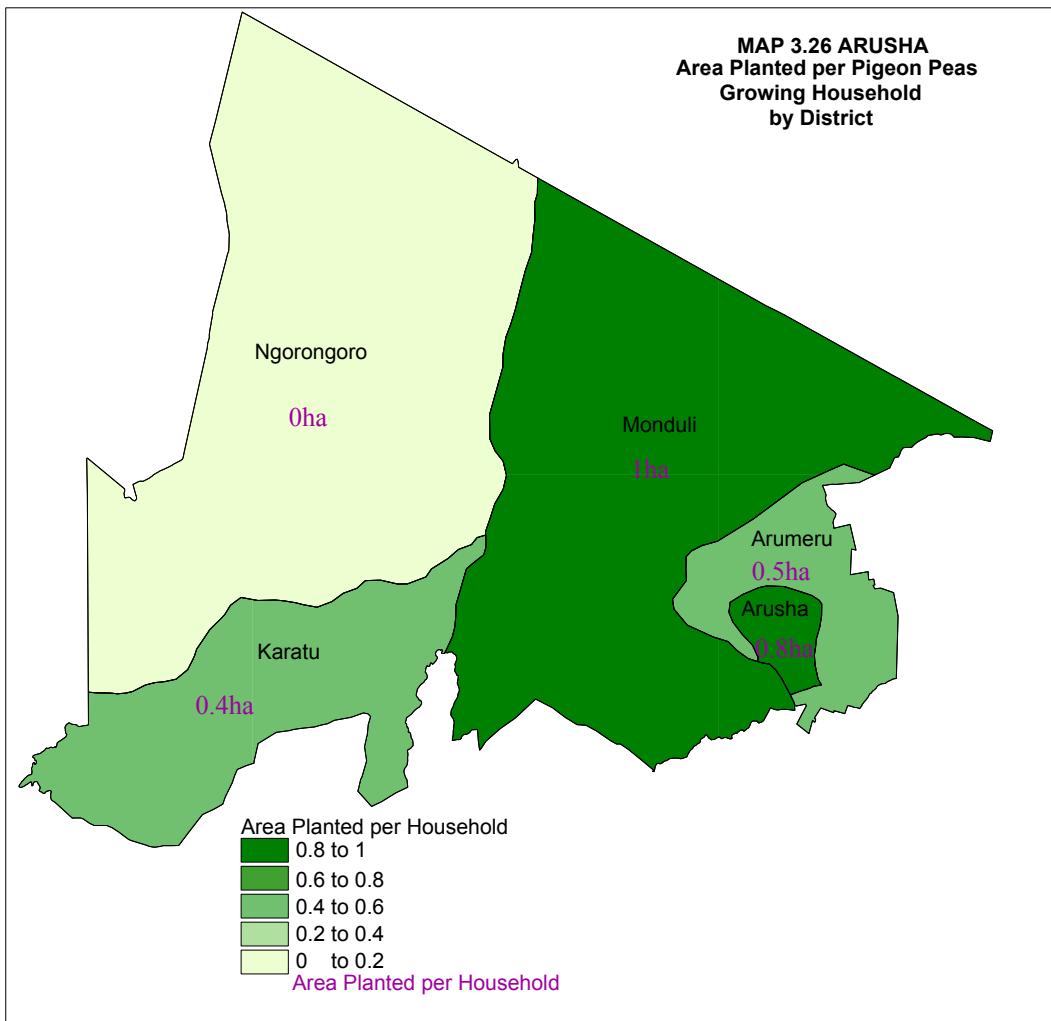
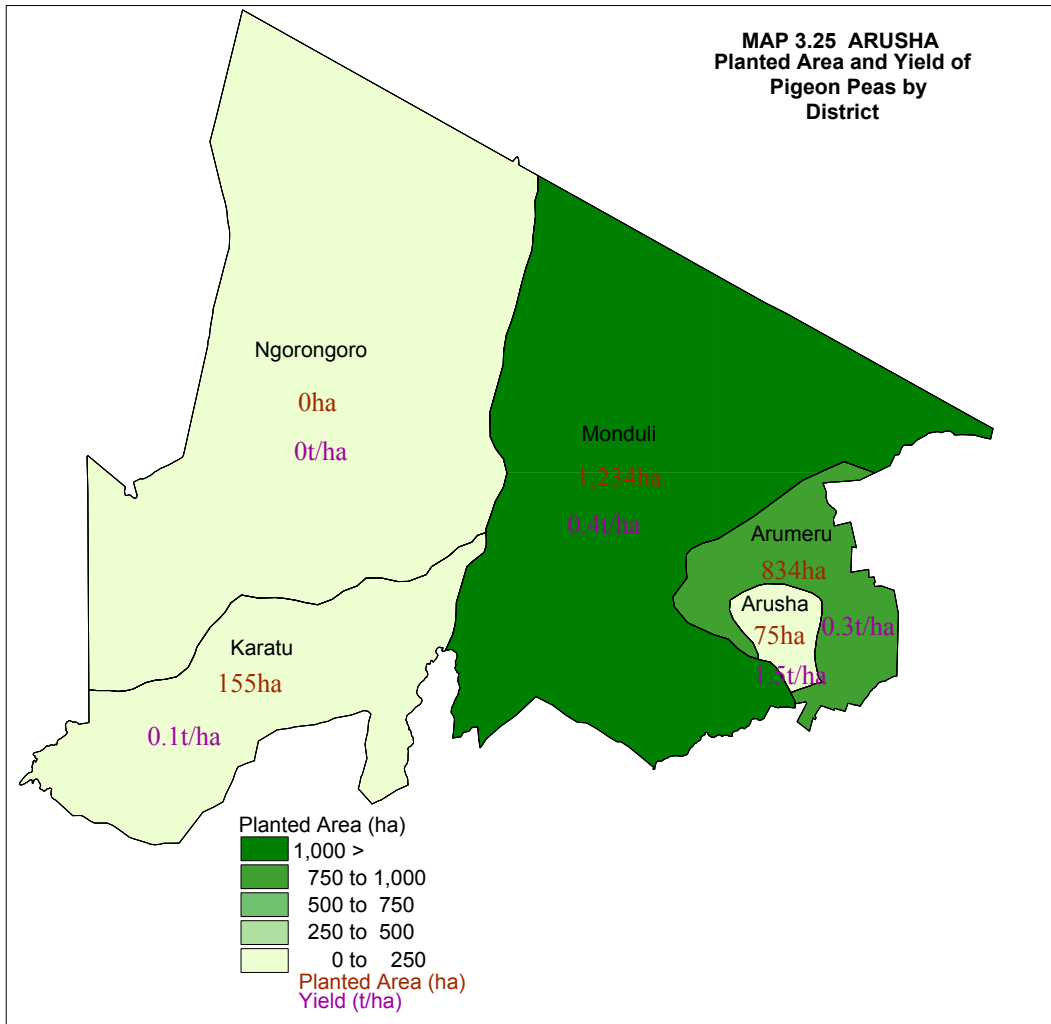
Karatu had the largest area of pigeon peas in the region (3,742 ha, 66%) followed by Arumeru (1,794ha, 32%) and Monduli (137 ha, 2%) (Map 3.25). However, the average area planted with pigeon peas per pigeon peas planting household was highest in Karatu (0.8 ha) followed by Monduli (0.4 ha) (Chart 3.53 and Map 3.26).

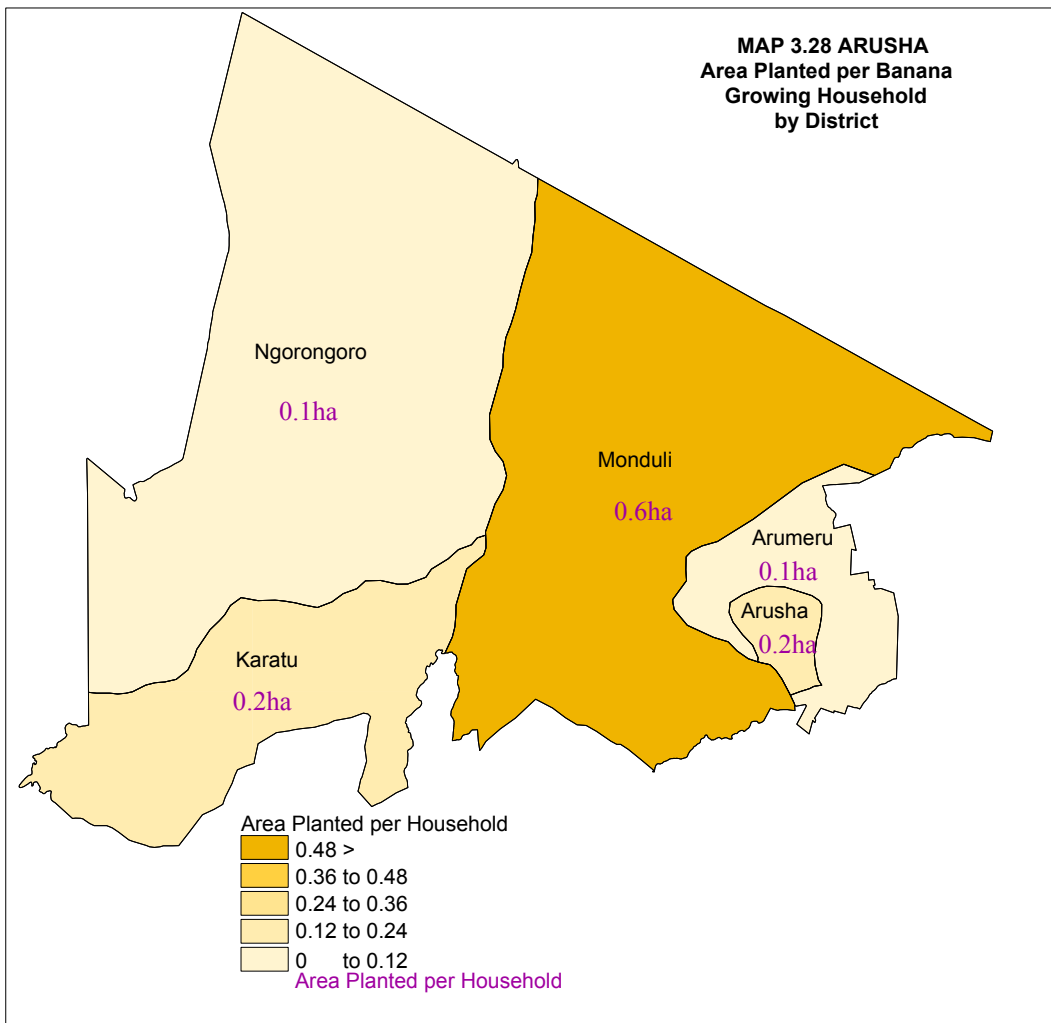
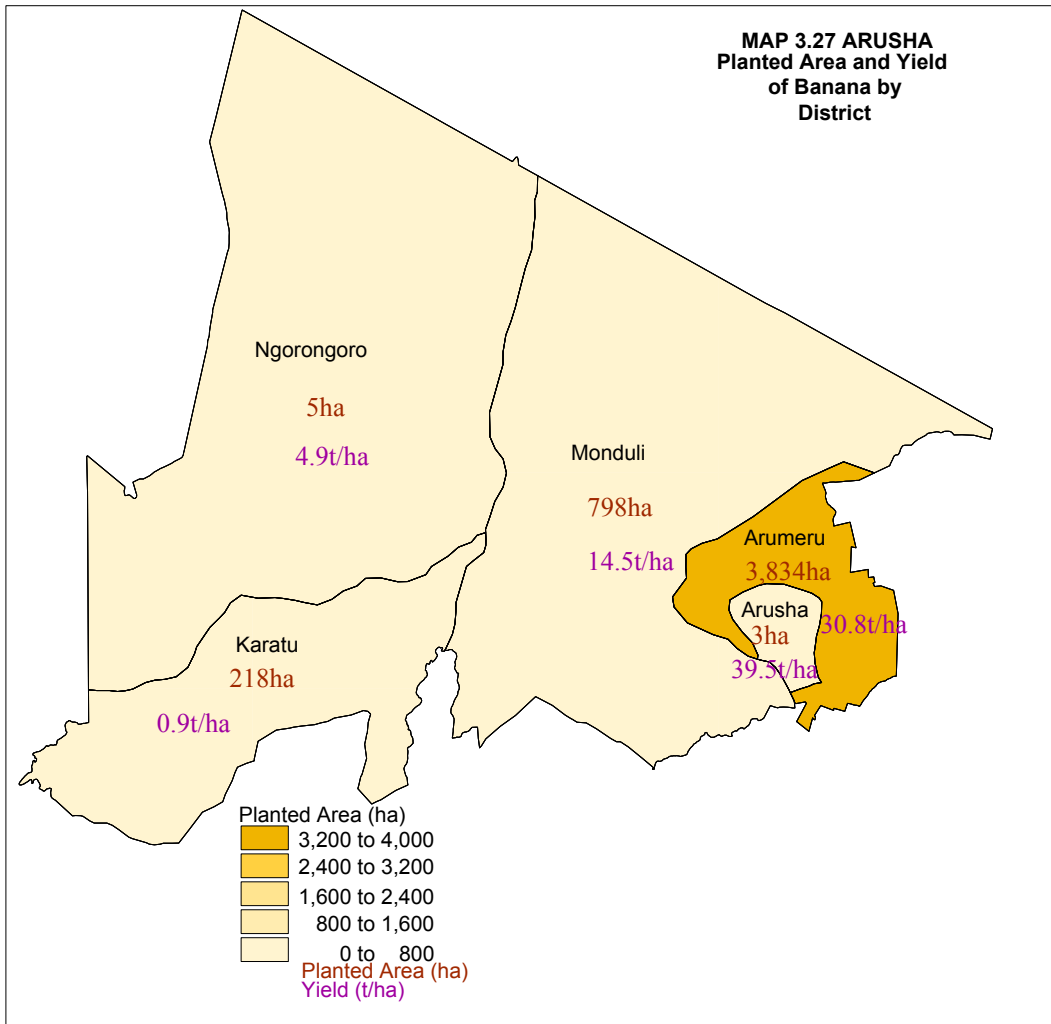


3.4.3 Banana

The total production of banana by smallholders was 130,416 tonnes. In terms of area planted, banana was the third most important permanent crop grown by smallholders in the region. It was grown by 23,195 households (16.8% of the total crop growing households). The average area planted with banana per household was relatively small at around 0.2 ha per banana growing household and the average yield obtained by smallholders was 26,851 kg/ha from a harvested area of 4,857 hectares.

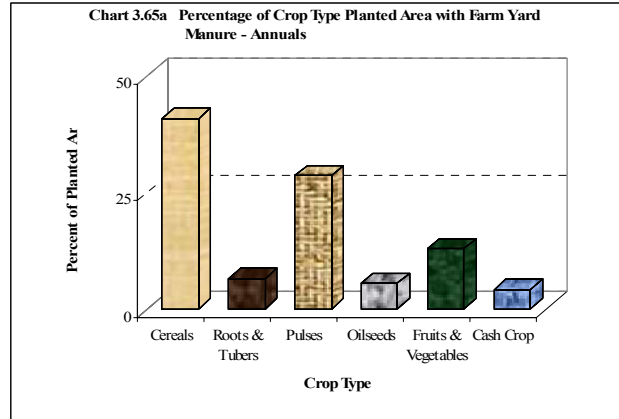
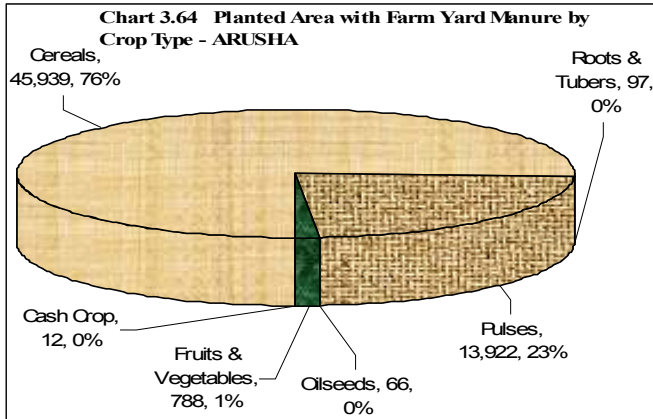






3.5.4.1 Farm Yard Manure Use

The total planted area applied with farm yard manure in Arusha region was 60,974 ha. The number of households that applied farm yard manure in their annual crops during the long rainy season was 66,312 and it was applied to 39,603 ha



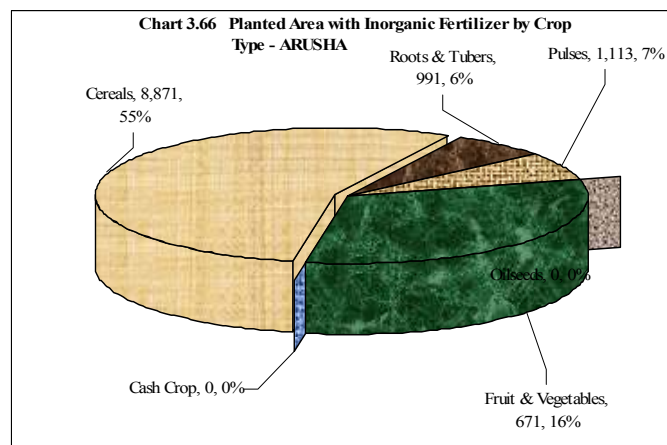
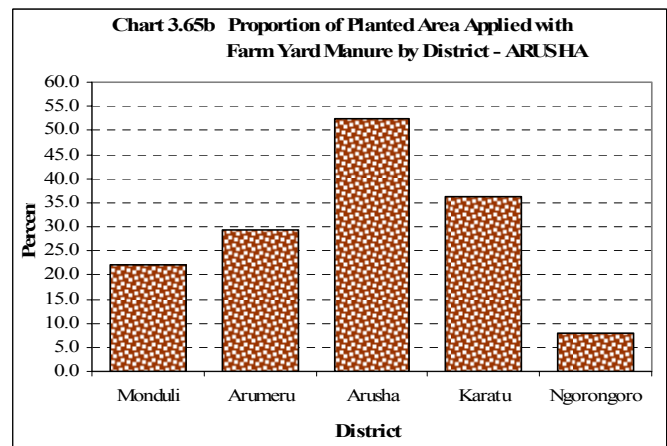
representing 28 percent of the total area planted during that season (Table 3.10). Cereals had the highest percent of the total area planted with applied farm yard manure (64%), followed by pulses (32%).

However, fruit and vegetables had a relatively high percent of the planted area with farm yard manure (13% of the total area of fruit and vegetables in Arusha). This was followed by roots and tubers (7%), oil seeds (6%) and cash crops (4%) (Chart 3.64). Farm yard manure is mostly used in Arusha (52% of the total planted area in the district), followed by Karatu (36%), Arumeru (29%), Monduli (22) and Ngorongoro (8%) (Chart 3.65b).

For permanent crops, most farm yard manure is used for the production of coffee (40.1%), followed by banana (32.9%) and pigeon peas (25.2%).

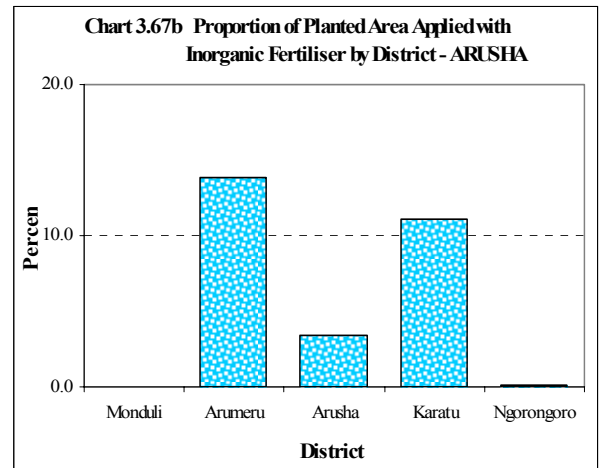
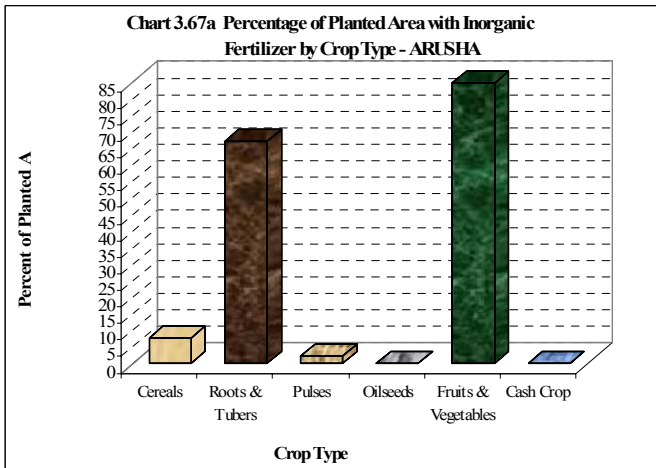
3.5.4.2 Inorganic Fertiliser Use

The total planted area applied with inorganic fertilisers in Arusha region was 15,492 ha which represents 9.5 percent of the total planted area with annuals in the region and 20 percent of the total planted area with fertiliser. The number of households that applied inorganic fertilizer on their annual crops during the long rainy season was 11,765 and it was applied to 8,998 ha representing 6 percent of the total area planted during that season (Table 3.10). The largest area applied with inorganic fertilizers was on cereals (60% of the total area applied with inorganic fertilizers), followed by fruit and vegetables (23%), pulses (9) and roots and tubers (8%), (Chart 3.66).



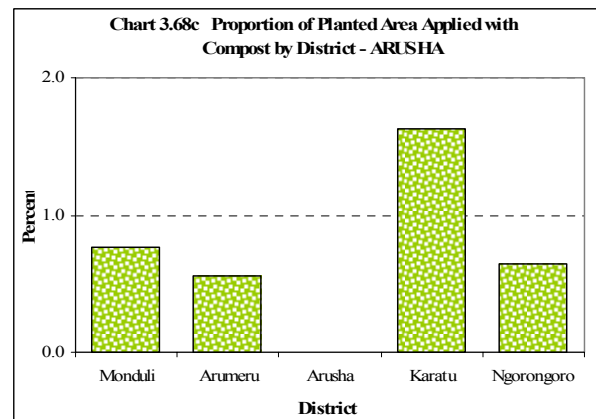
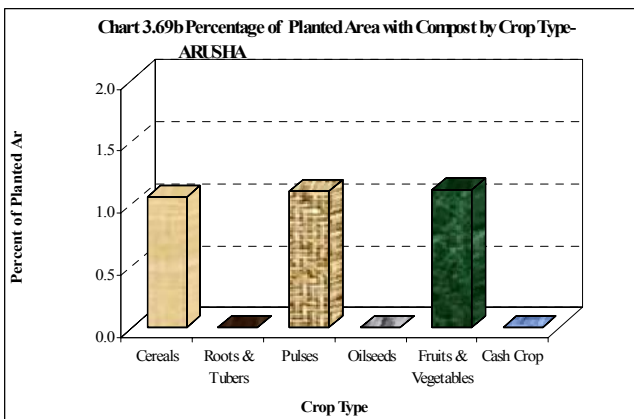
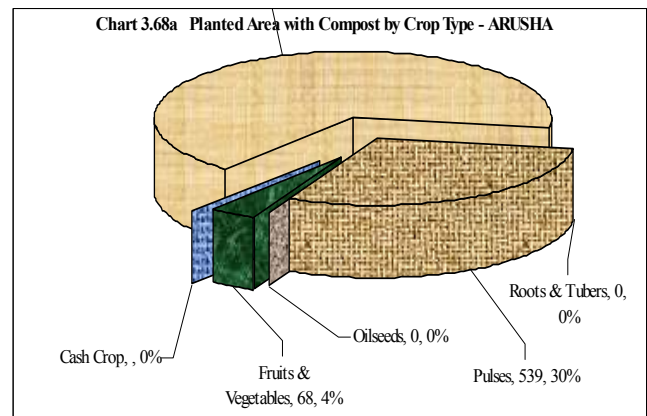
Inorganic fertiliser is mostly used in Arumeru (5% of the total planted area in the district), followed by Karatu (2%) and Arusha (0.1). Other districts used virtually no inorganic fertiliser and Monduli recorded zero inorganic fertiliser use (Chart 3.67b).

In permanent crops inorganic fertiliser were used on tea (5.2%), followed by sugarcane (1.1%), coconut (0.3%), mangoes (0.15%) and oranges (0.14%).



3.5.4.3 Compost Use

The total planted area applied with compost was 1,392 ha which represents only 0.8 percent of the total planted area with annual crops in the region and 2.2 percent of the total planted area with fertiliser in the region. The number of households that applied compost manure on their annual crops during the long rainy season was 1,126 and it was applied to 1,123 ha representing 1.0 percent of the total area planted (Table 3.10 and Chart 3.68a). The proportion of area applied with compost was very low for each type of crop (0 to 0.1%), (Chart 3.68b). However, the distribution of the total area using compost manure shows that 55 percent of this area was cultivated with cereals, followed by fruits and vegetables (32%), pulses (6.9%) and roots and tubers (6.2%). Compost is mostly used in Karatu (1.6% of the total planted area in the district), and this is followed by Monduli (0.8%).



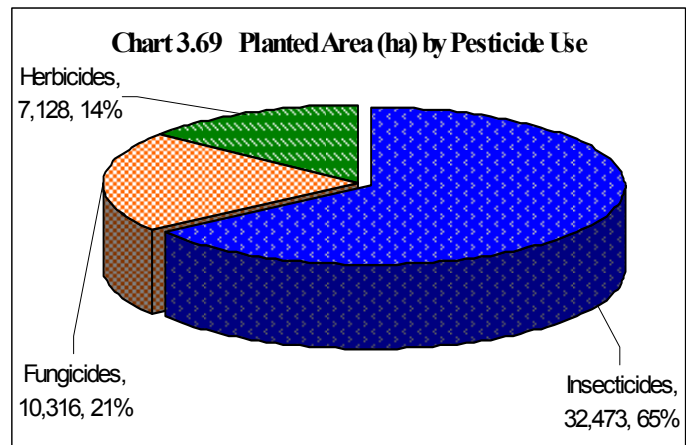
Ngorongoro (0.64%) and Arumeru (0.55%) Compost was not used in Arusha district.

In permanent crops, compost was mostly used to banana (36.8%) followed by pigeon peas and mango each with (31.6%),

3.5.5 Pesticide Use

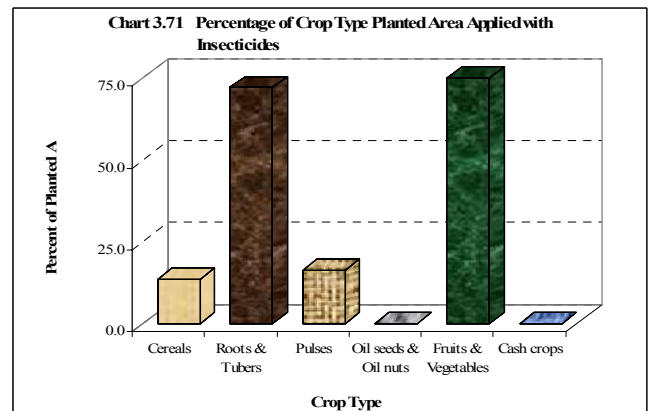
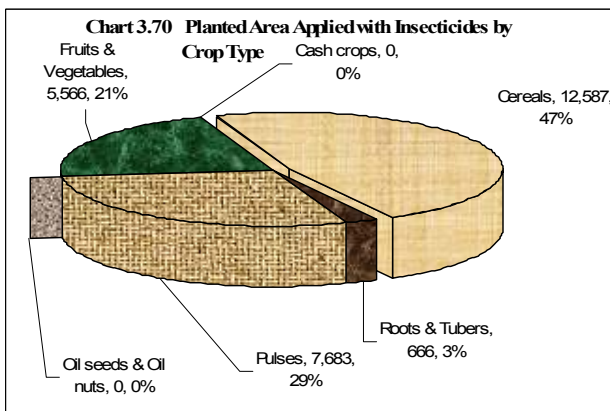
Pesticides are chemicals used for controlling insects, diseases and weeds. This section analyses the use of these chemicals by smallholders on both annual and permanent crops in the region. Pesticides were applied to a planted area of 49,917 ha of annual crops and vegetables.

Insecticides are the most common pesticide used in the region (65% of the total area applied with pesticides). This was followed by fungicides (21%) and herbicides (14%) (Chart 3.69).



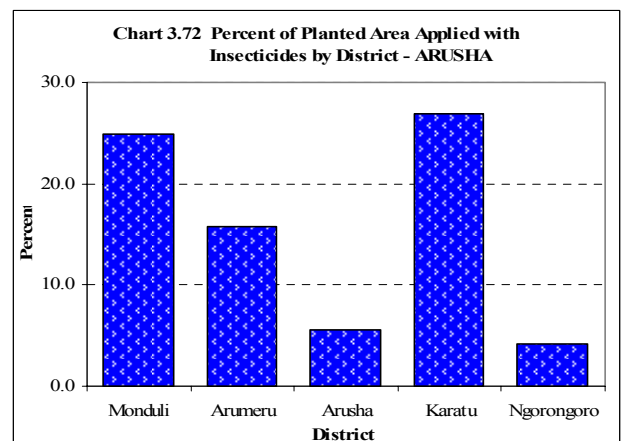
3.5.5.1 Insecticide Use

The planted area applied with insecticides was estimated at 26,502 ha which represented 18.5 percent of the total planted area for annual crops and vegetables.



Cereals had the largest planted area applied with insecticides (12,587 ha, 47.5% of the total planted area with insecticides) followed by pulses (7,683ha, 29%), fruit and vegetables (5,567 ha, 21%), and roots and tubers (666 ha, 2.5%). There was no application of pesticides on cash crops and oil seeds in the region (Chart 3.70). However, the percent of insecticides used in fruits and vegetables and in roots and tubers is much greater than in other crop types (73% and 72% respectively), (Chart 3.71).

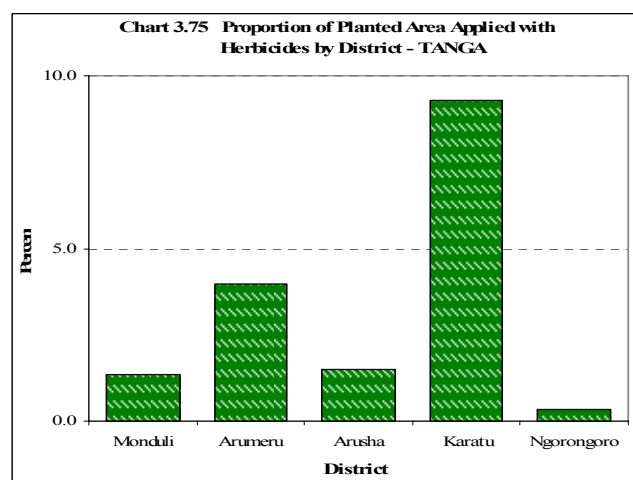
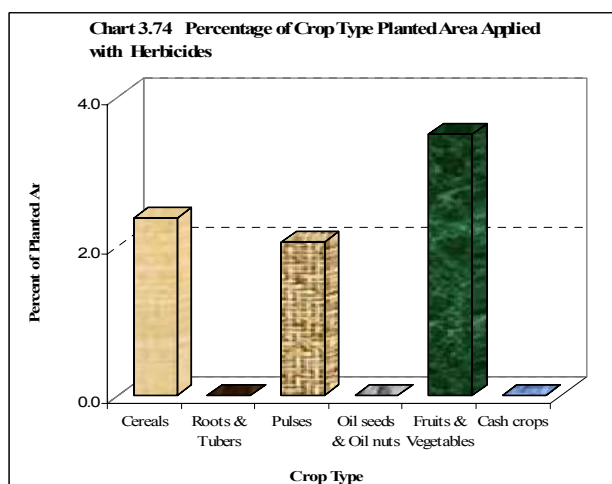
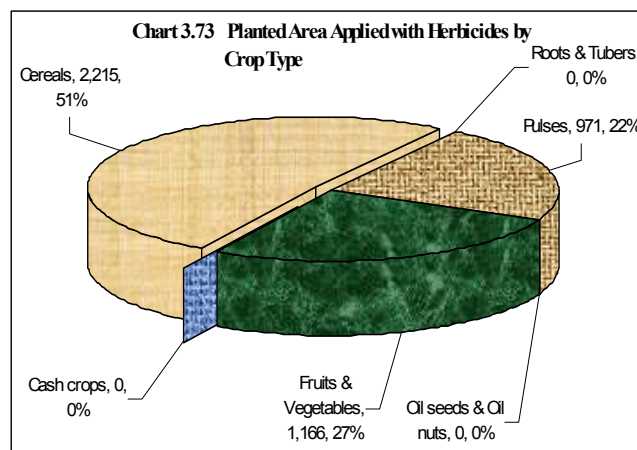
Annual Crops with more than 50 percent insecticide use were cabbage (100%), chillies (100%), water melon (100%), onions (84.2%), spinach (78.2%), tomatoes (77.9%), amaranths (67%), and paddy (63%). Karatu had the highest percent of planted area with insecticides (26.9% of the total planted area with annual crops in the district). This was closely followed by Monduli (24.9%) then Arumeru (15.8%), Arusha (5.5%) and Ngorongoro (4.2%), (Chart 3.72).



3.5.5.2 Herbicide Use

The planted area applied with herbicides was 4,352 ha which represented 3.0 percent of the total planted area of annual crops and vegetables. Cereals had the largest planted area applied with herbicides (2,215 ha, 51%), followed by fruits and vegetables (1,166 ha, 27%), and pulses (971 ha, 22%), (Chart 3.73).

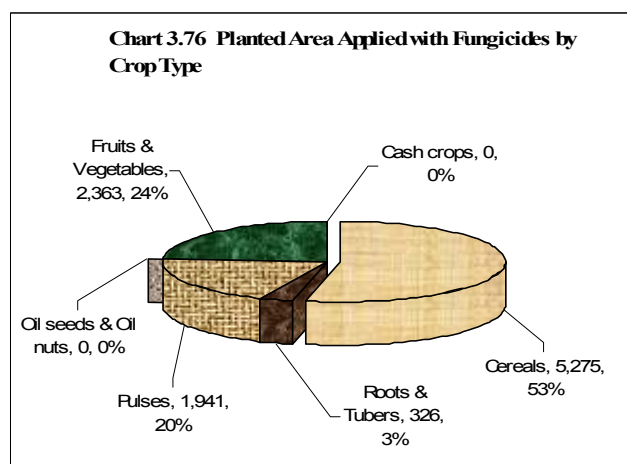
There was no application of herbicide on roots and tubers, cash crops and oil seeds (Chart 3.74). The top six annual crops with highest percentage use of herbicides in terms of planted area were maize (29.8%), wheat (22.1%), beans (13.4%), paddy (12.3%), onions (10.9%) and barley (6.3%).



Karatu had the highest percent of planted area with herbicides (9.3% of the total planted area with annual crops in the district). This was followed by Arumeru (4.0%) then Arusha (1.5%) and Monduli (1.4%). The smallest percentage use was recorded in Ngorongoro district (0.3%) (Chart 3.75).

3.5.5.3 Fungicide Use

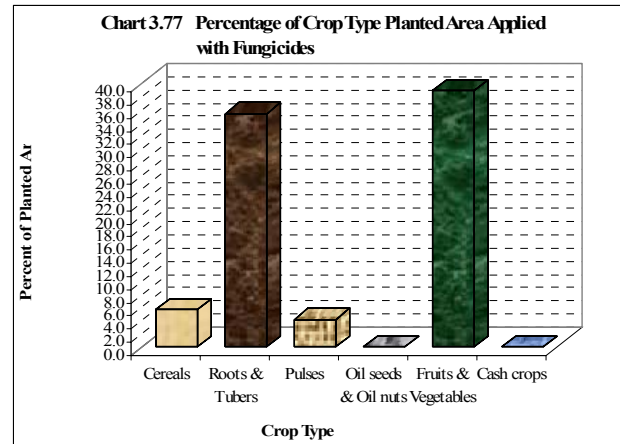
The planted area applied with fungicides was 10,316 ha which represented 6.18 percent of the total planted area for annual crops and vegetables. The percentage use of fungicides in the short rainy season at (7.6%) was higher than the corresponding percentage for the long rainy season (5.8%). Cereals had the largest planted area applied with fungicides (5,275ha, 53%) followed by Fruits and vegetables (2,353 ha, 24%), pulses (941 ha, 20%), roots and tubers (326 ha, 3.0%). There was no application of fungicide on oil seeds and cash crops) (Chart 3.76)



However, the percentage use of fungicide in fruits and vegetables and roots and tubers was much greater than in other crop types (38.9% and 35.3% respectively). (Chart 3.77).

Annual crops with more than 40 percent fungicide use were water melon (100%), barley (90%), egg plant (84.2%), tomatoes (79.1%), wheat (54.7%) and chillies (47.8).

Karatu had the highest percent of planted area with fungicides (7.5% of the total planted area with annual crops in the district). This was closely followed by Arumeru (6.5%) and Monduli (5.5%). The smallest percentage use was recorded in Ngorongoro district (1.0%) (Chart 3.78).

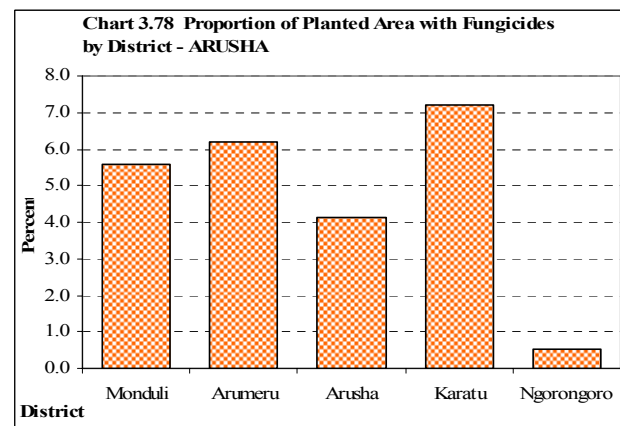


3.5.6 Harvesting Methods

The main harvesting method for cereals was reported to be by hand. Very small acreage of maize (0.8%), chick peas (1.8%), barley (1.9%) and wheat (13.7%) were harvested by machine. All other cereals and annual crops were harvested by hand.

3.5.7 Threshing Methods

Hand threshing was the most common method used, with 52 percent of the total area planted with cereals during the long rainy season was threshed by hand. Draft animals, human powered tools and engine driven machines were only used on crops harvested from 0.1 percent and 0.2 percent of the total planted area respectively.

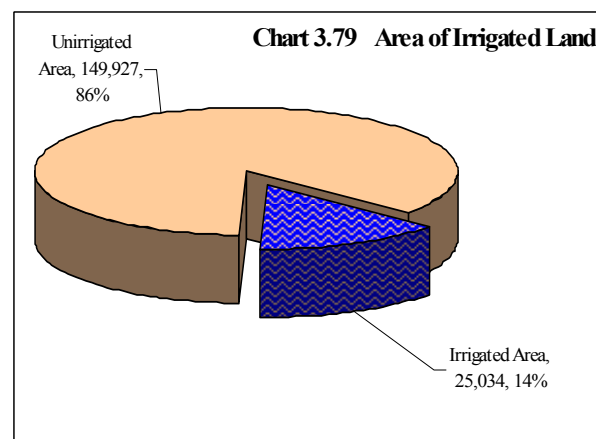


3.6 Irrigation

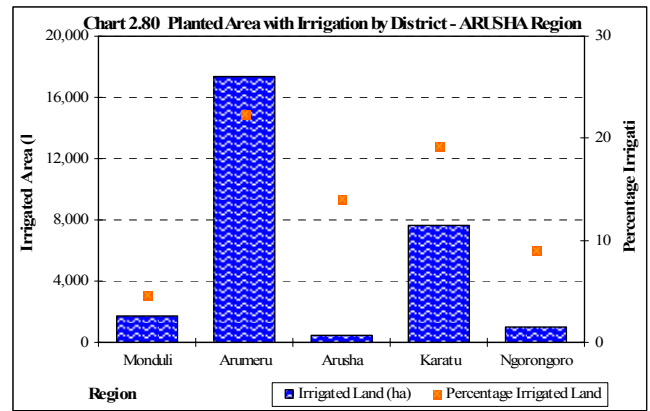
Water is the limiting factor to crop production in the majority of areas in Tanzania and without water most other cultural practices applied to crops do not result in significant increases in yields. This section deals with the area under irrigation by different crops and the means by which water was extracted from the source and applied to the field.

3.6.1 Area Planted with Annual Crops and Under Irrigation

In Arusha region, the area of annual crops under irrigation was 25,034 ha representing 14 percent of the total area planted (Chart 3.79). The area under irrigation during the short rainy season was 9,187 ha accounting for 39 percent of the total area under irrigation. Some crops, especially vegetables, were predominantly grown in the short rainy season with irrigation. In the short rainy season, 97 percent of the area planted with vegetables was irrigated, whilst 63 percent of the vegetables were irrigated in the long rainy season.



The district with the largest planted area under irrigation with annual crops was Arumeru (17,392 ha, 22% of the total irrigated planted area with annual crops in the region). This is followed by Karatu with (7,639 ha, 19%) and then Arusha (2,923 ha, 14%). When expressed as a percentage of the total area planted in each district, Arumeru had the highest with 62 percent of the planted area in the district under irrigation. This is followed by Karatu (27%), Monduli (6%), Ngorongoro (4%), and Arusha (1%) (Chart 3.80 and Map 3.30).



Of all the different crops and in terms of proportion of the irrigated planted area, water melon, chillies, egg plant and soya beans were the most irrigated crops with 100 percent irrigation followed by paddy (93%), tomatoes (88%), cabbage (88%) and onions (76%).

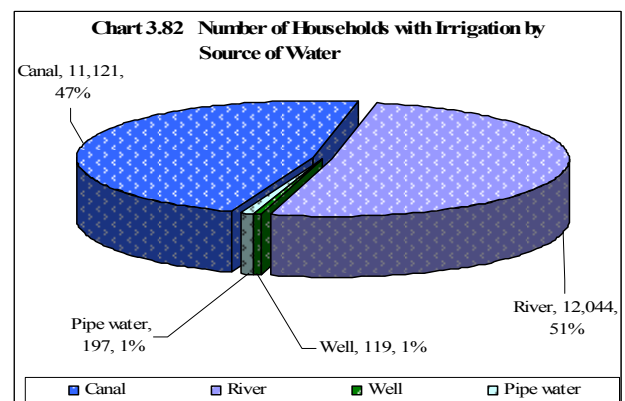
In terms of crop type, the area under irrigation with cereals was 13,661 ha (58% of the total area under irrigation), followed by fruits and vegetables with 5,037 ha (21%), pulses (3,484 ha, 15%) and roots and tubers (824 ha, 4%). All of the irrigation on cereals was applied to maize, paddy and sorghum.

The area of fruit and vegetables under irrigation was 5,037 ha which represents 83 percent of the total planted area with fruit and vegetables. Onions, Tomatoes, cabbages and water melon were the most irrigated crops. Irrigation was not used on annual cash crops.

The Planted area with irrigation in Arusha region was 23,517 hectares.

3.6.2 Sources of Water Used for Irrigation

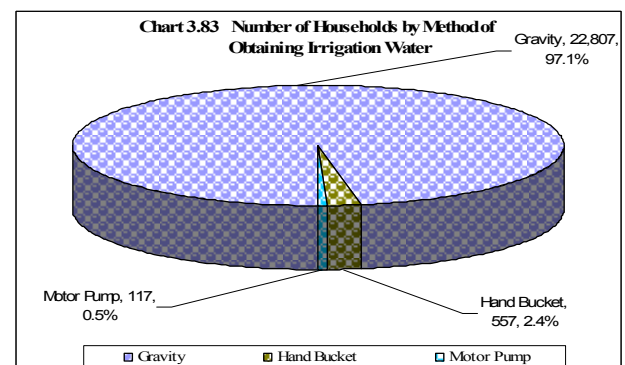
The main source of water used for irrigation was from rivers (51.3% of households with irrigation). This was followed by canals (47.4%). The proportion of households that used wells and pipe water as a source of water for irrigation were very few (0.5% and 0.8% respectively). Most households using irrigation in Arumeru and Karatu get their irrigation water from rivers (85% and 94% respectively).

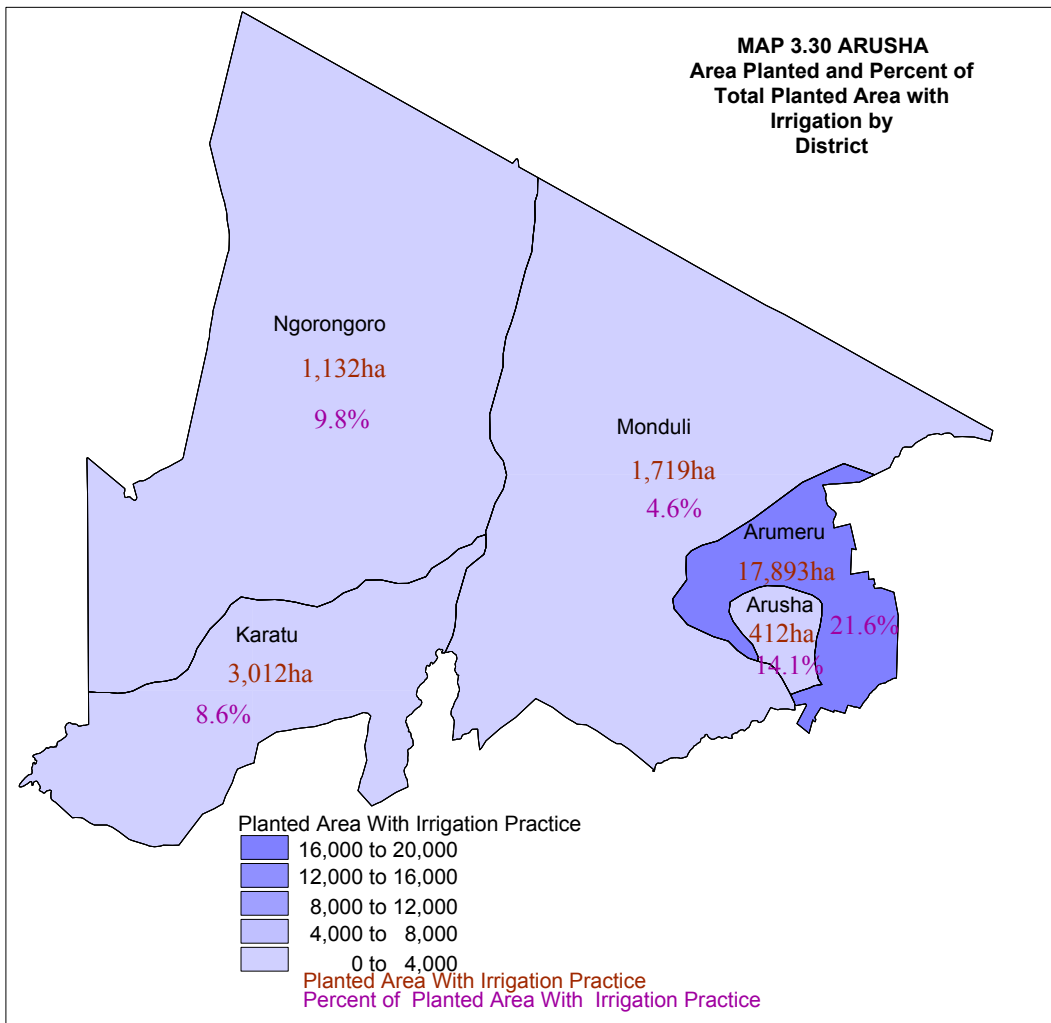
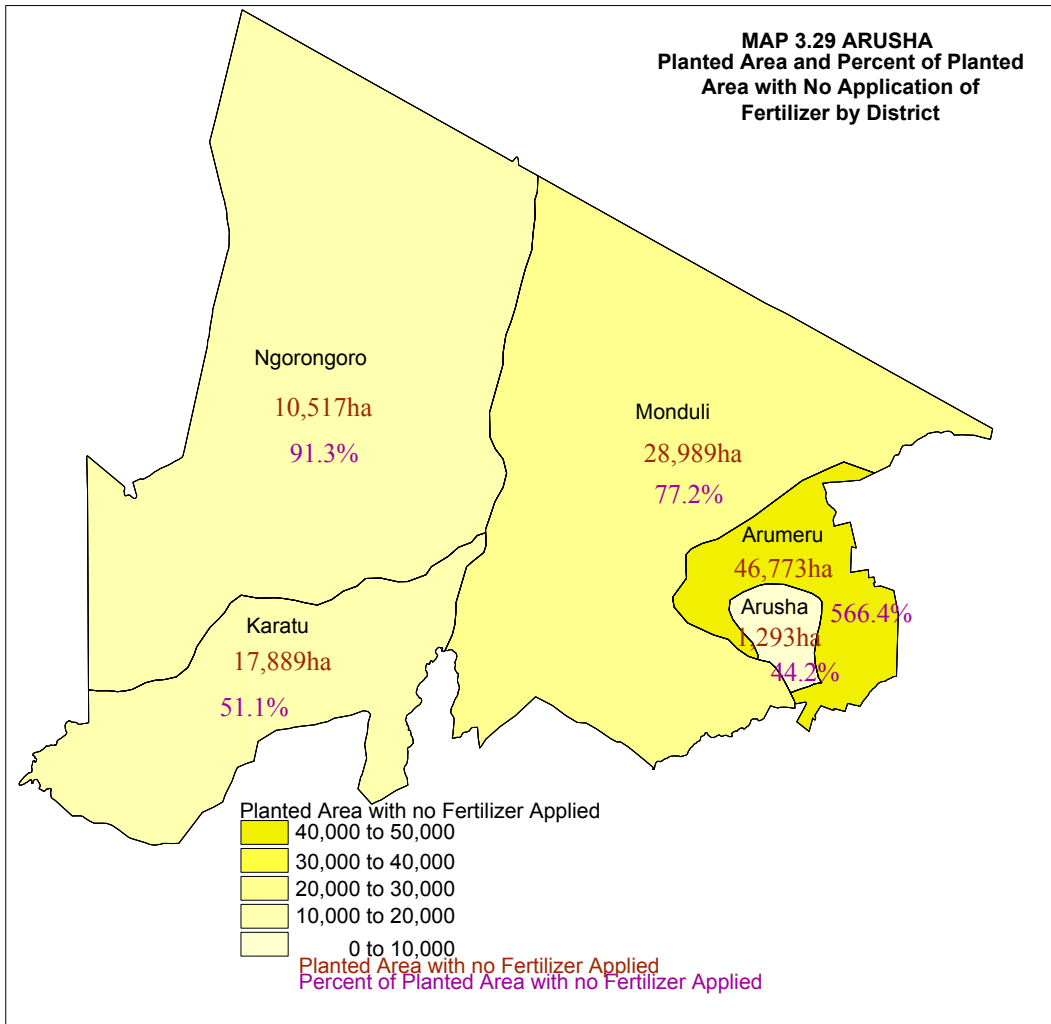


3.6.3 Methods of Obtaining Water for Irrigation

Gravity was the most common means of getting water for irrigation with 97.1 percent of households using this method. The remaining methods (hand bucket and motor pump) were of minor importance (Chart 3.83).

Gravity was used by most households with irrigation in Arumeru (73.9%), followed by Karatu (11.3%), Ngorongoro (7.3%), Monduli (6.4%), and Arusha (1.1%). Hand bucket was more common in Arumeru with 78.5 percent of households using the method to get water for irrigation, followed by Karatu (10.9), and Ngorongoro (10.5%)





3.6.4 Methods of Water Application

Most households used flood irrigation (96% of households using irrigation) as a method of field application. This was followed by hand bucket/watering can (3%). Sprinklers were not widely used (1%).

3.7 Crop Storage, Processing and Marketing

3.7.1 Crop Storage

Crop storage means keeping a crop for a certain period of time as food for the household, in order to sell at higher prices and as seed for planting in the following season.

The results for Arusha region show that there were only 183,125 crop growing households (16.2% of the total crop growing households) that stored various agricultural products in the region.

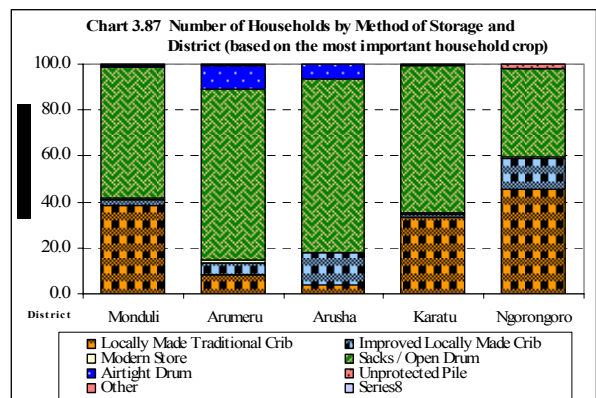
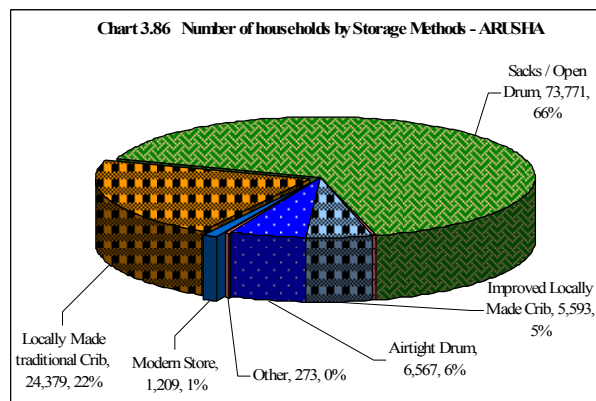
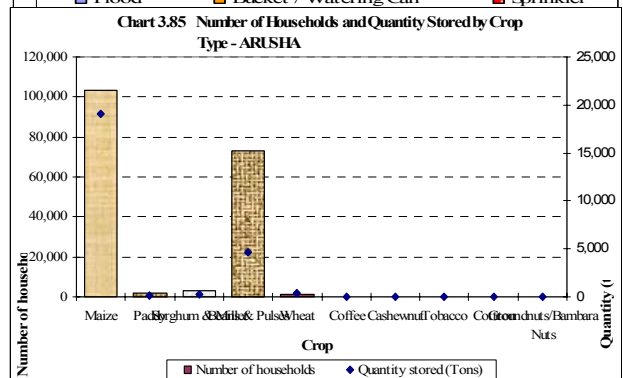
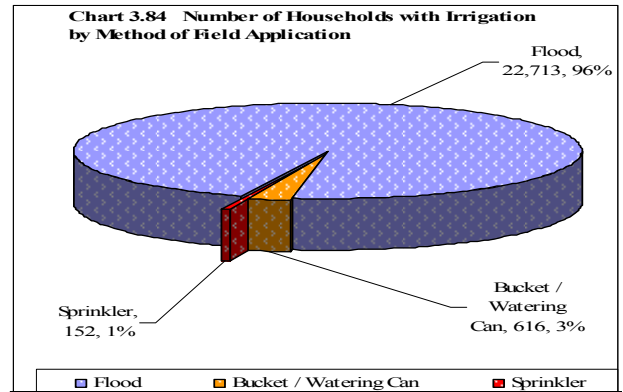
The most important stored crop was maize with 103,383 households storing 19,114 tonnes as of 1st January 2004. This was followed by beans and other pulses (72,689 households, 4,698tonnes). Other crops were stored in very small amounts.

3.7.1.1 Methods of Storage

The region had 73,771 crop growing households storing their produce in sacks and/or open drums (65.8% of households that stored crops in the region). The number of households that stored their produce in locally made traditional structures was 24,379 (21.79%). This was followed by air tight drums (6,567 households, 5.91%), improved locally made structures (5,593 households, 5.0%) and modern stores (1,209 households 1%).

Sacks/open drums were the dominant storage method in all districts, with the highest percent of households in Arusha using this method (76.0% of the total number of households storing crop products). This is followed by Arumeru (74.2%), Karatu (64.3%), Monduli (57.3%) and Ngorongoro (38.2%) (Chart 3.80).

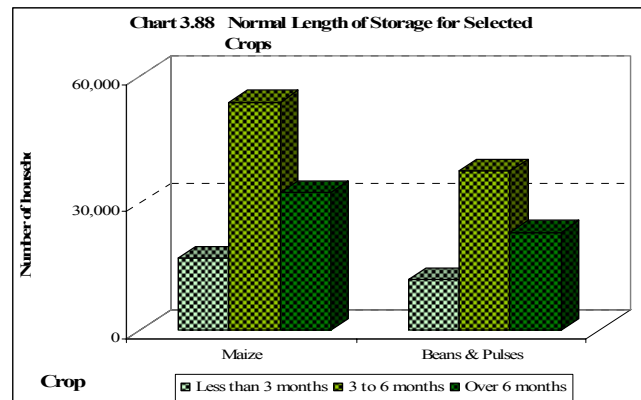
The highest percent of households using locally made traditional structure was in Ngorongoro, Monduli and Karatu, with 45.7%, 38.4% and 33.5% respectively, of the total number of households storing crops.



3.7.1.2 Duration of Storage

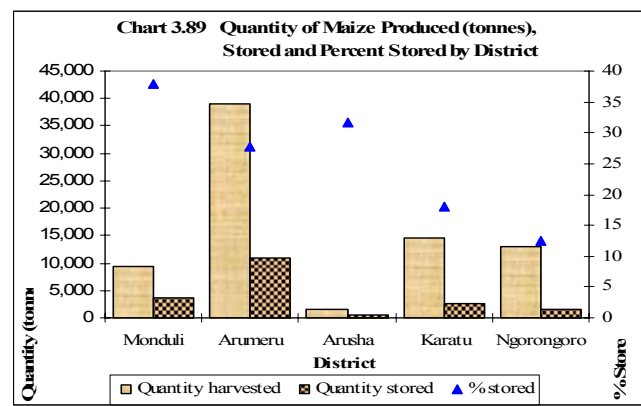
Most households (52% of the households storing crops) stored their produce for a period of 3 to 6 months followed by those who stored for a period of over 6 months. The minority of households stored their crop for a period of less than 3 months (16%).

Most households that stored pulses stored for a period of between 3 and 6 months, followed by a period over 6 months. A small number of households stored pulses for the period of less than 3 months (Chart 3.88).



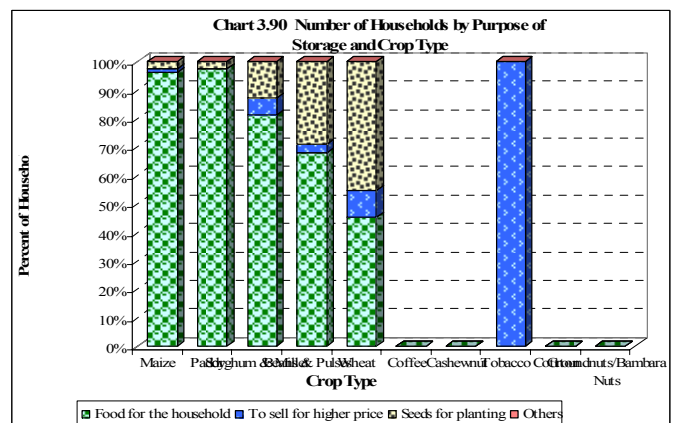
The proportion of households that stored their produce for the duration of 3 to 6 months was highest in Arumeru district (54%) followed by Karatu (24%), Ngorongoro (11%), Monduli (9%), and Arusha (2%) (Map 3.31).

District comparison of duration of storage cannot be done for all crops combined. However, the analysis has been done for maize only as it is the most commonly stored crop. In general, quantity stored was related to the quantity produced. Districts with greater production had a higher percent of their crop stored as on 1st October 2003 (Chart 3.89).



3.7.1.3 Purposes of Storage

Subsistence food crops (maize, paddy, sorghum and millet, beans and pulses) are mainly stored for household consumption. The percent of households that stored maize for household consumption as the main purpose of storage was 96.1 percent followed by seed for planting. Practically, all stored annual cash crops were stored for selling at higher prices, as was the case of tobacco (100%). (Chart 3.90).



3.7.1.4 The Magnitude of Storage Loss

About 79 percent of households that stored crops had little or no loss, however the proportion of households that experienced a loss of more than a quarter was higher for food crops than crops that are produced for sale such as coffee, tobacco, cashew nuts, groundnuts and bambarra nuts.

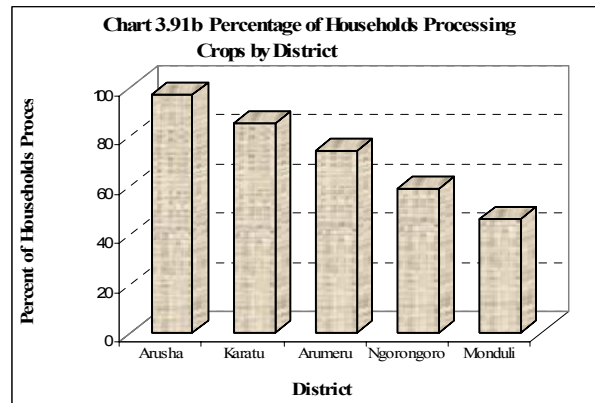
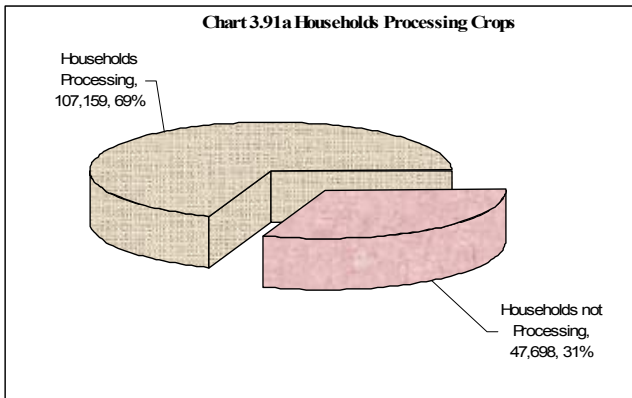
Table 3.11: Number of Households Storing Crops by Estimated Storage Loss and District

District	Estimate Storage Loss				Total
	Little or no Loss	Up to 1/4 Loss	Between 1/4 and 1/2 Loss	Over 1/2 Loss	
Monduli	12,978	6,957	1,195	258	21,387
Arumeru	80,187	12,180	3,120	765	96,252
Arusha	2,667	38	0	0	2,706
Karatu	32,292	8,421	1,271	520	42,505
Ngorongoro	16,833	2,281	1,161	0	20,275
Total	144,957	29,877	6,747	1,544	183,125

The proportion of households that reported a loss of more than a quarter was greatest for maize 2.3% of the total number of households that stored crops). This was followed by beans and pulses (1.2%). All households that stored cash crops such as tobacco had no storage loss.

3.7.2 Agro processing and By-products

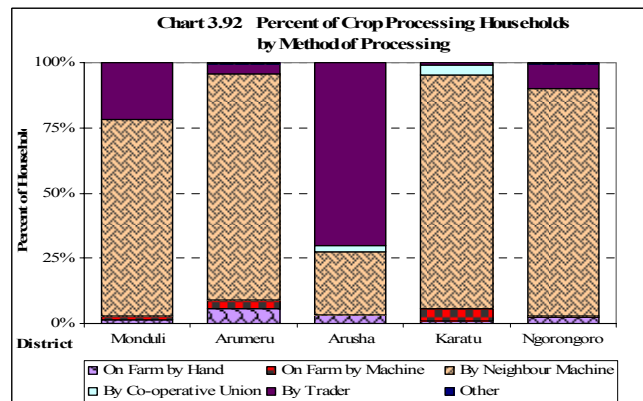
Agro processing refers to a process that converts a crop product from one form to another form in order to add value or increase the palatability of the product. Agro-processing was practiced in most crop growing households in Arusha region (107,159 households, 69% of the total crop growing households) (Chart 3.91a).



The percent of households processing crops was high in most districts (above 70%). Ngorongoro and Monduli had the lowest percent of households processing crops (59% and 46% of crop growing households respectively) (Chart 3.91b).

3.7.2.1 Processing Methods

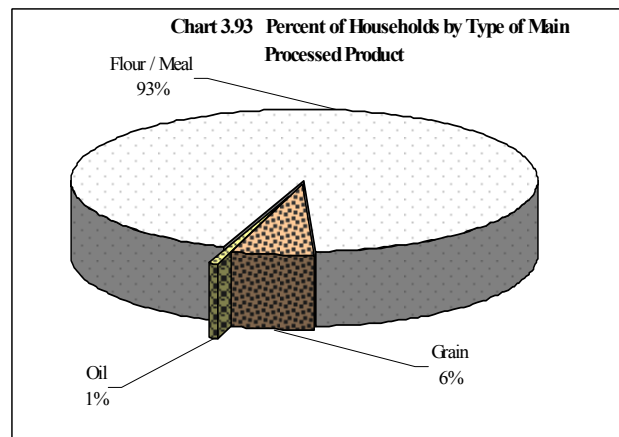
Most crop processing households processed their crops using neighbour’s machines representing 85 percent (91,288 households). This was followed by those processing by trader (7,340 households, 7%), on farm by hand (3,925 households, 4%) and on-farm by machine (3,363 households, 3%). The remaining methods of processing were used by very few households (less than 1%).



Processing by machine was the most common processing method in all districts in Arusha region, and processing by trader was more common in Arusha district (70%), followed by Monduli (22%) (Chart 3.92).

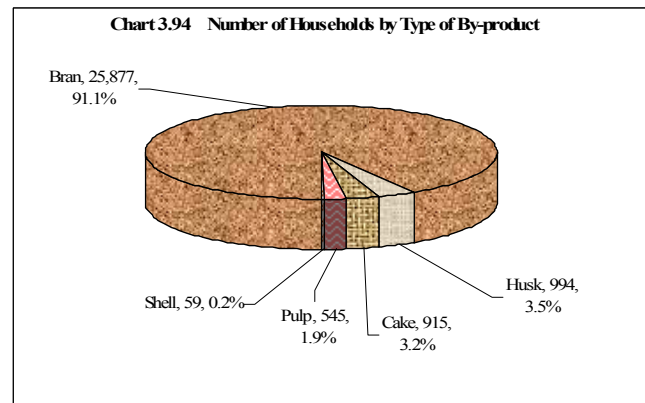
3.7.2.2 Main Agro-processing Products

Two types of products can be produced from agro-processing namely, main product and by-product. The main product is the major product after processing and the by-product is secondary after processing. For example the main product after processing maize is normally flour whilst the bi-product is normally the bran.



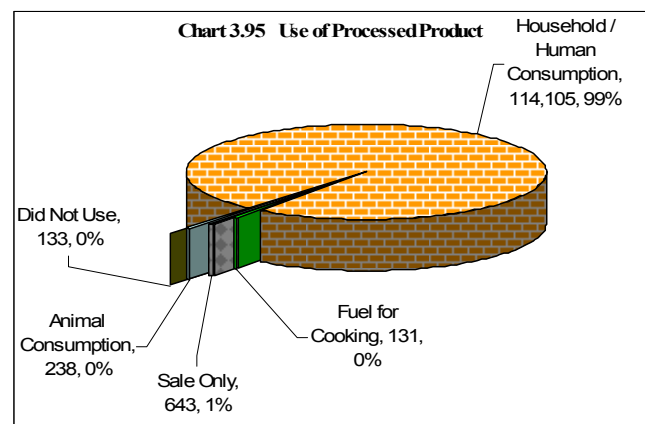
The main processed product was flour/meal with 100,391 households processing crops into flour (93%) followed by grain with 6,072 households (6%). The remaining products were produced by a small number of households (Chart 3.93).

The number of households producing by-products accounted for 26.5 percent of the households processing crops. The most common by-product produced by crop processing households was bran with 25,877 households (91.1%) followed by Husks (994 households, 3.5%), cake (915 households, 3.2%) and pulp (545 households, 1.9%). The remaining by-products were produced by a small number of households (Chart 3.94).

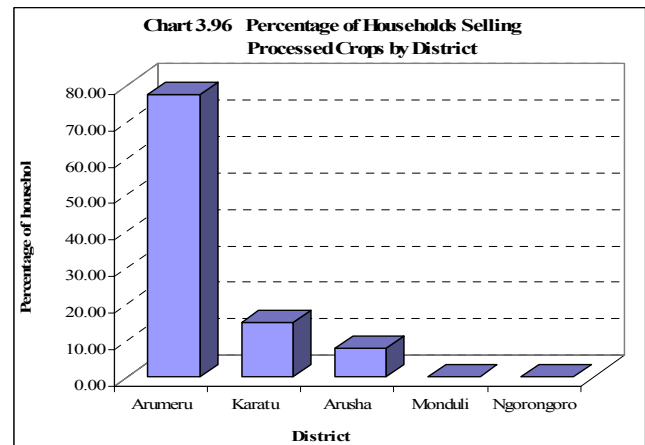


3.7.2.3 Main Use of Primary Processed Products

Primary processed products were used for households or human consumption, fuel for cooking, for selling and for animal consumption. The most important use was for household/human consumption which represented 99 percent of the total households that used primary processed product (Chart 3.95). Ngorongoro was the only district that used primary products as fuel for cooking.

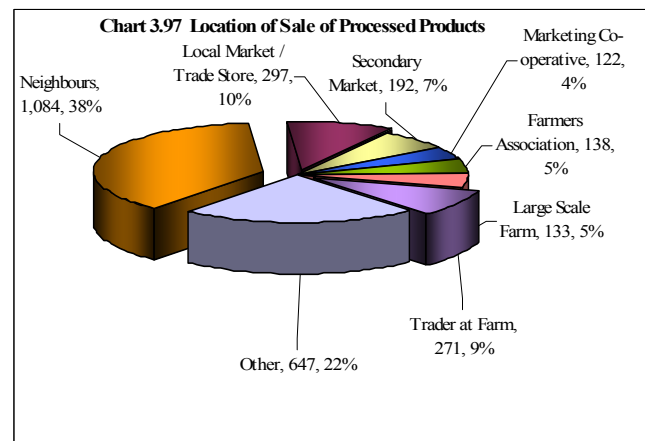


Out of 498 households that sold processed products, 385 were from Arumeru (77% of the total number of households selling processed products in the region), followed by Karatu with 74 households (15%) and Arusha with 38 households (7.7%), (Chart 3.96). Compared to other districts in Arusha region, Arusha district had the highest percent of households that sold processed products (2.42%). This is followed by Arumeru (0.68) and Karatu (0.32%).



3.7.2.4 Outlets for Sale of Processed Products

Most households that sold processed products sold to neighbours (1,084 households, 38% of households that sold crops). This was followed by selling to other buyers (647 households, 22%), local market and trade stores (297 households, 10%), trader at farm (271 households, 9%), secondary market (192 households, 7%), Farmers Associations (138 households, 5%), large scale farms (133 households, 5%) and marketing cooperatives (122 households, 4%), (Chart 3.97).

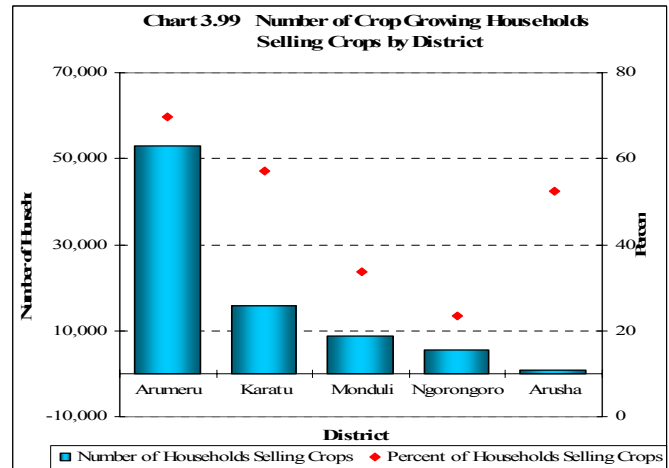


There are large differences between districts in the proportion of households selling processed products to neighbours with Monduli district having the largest percent of households in the district selling to neighbours (59%), whereas Arusha district had only 17 percent. Arusha had a higher percent of households relying on secondary markets than other outlets.

Compared to other districts, Arumeru had the highest percent of households selling processed products to traders at farm. In Karatu, the sale of processed produce to farmers associations was most prominent compared to other districts. The district that sold processed products to marketing cooperative was Ngorongoro.

3.7.3 Crop Marketing

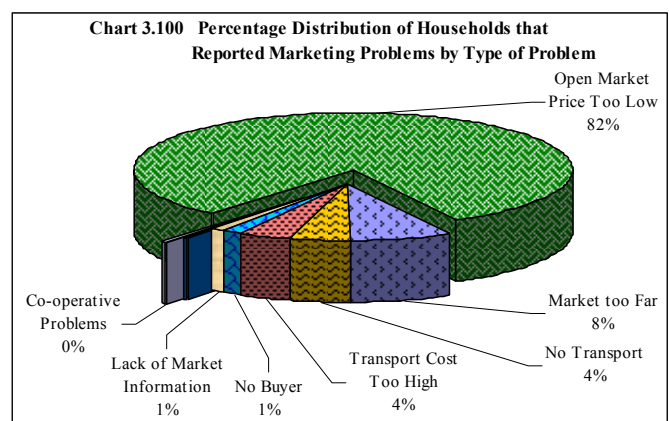
The number of households that reported selling crops was 83,922 which represent 54 percent of the total number of crop growing households. The percent of crop growing households selling crops was highest in Arumeru (70%) followed by Karatu (57%), Arusha (52%), Monduli (34%), and Ngorongoro (23%) (Chart 3.99 and Map 3.32).



3.7.3.1 Main Marketing Problems

Low price for agricultural produce was the main marketing problem reported by households (72% of crop growing households).

Apart from low market prices, other problems were longer distances to the markets (8%), lack of market information (7%), high transport costs (5%), lack of buyers (1%) and other problems (1%). Other marketing problems are minor and represented less than 1 percent of the total reported problems.



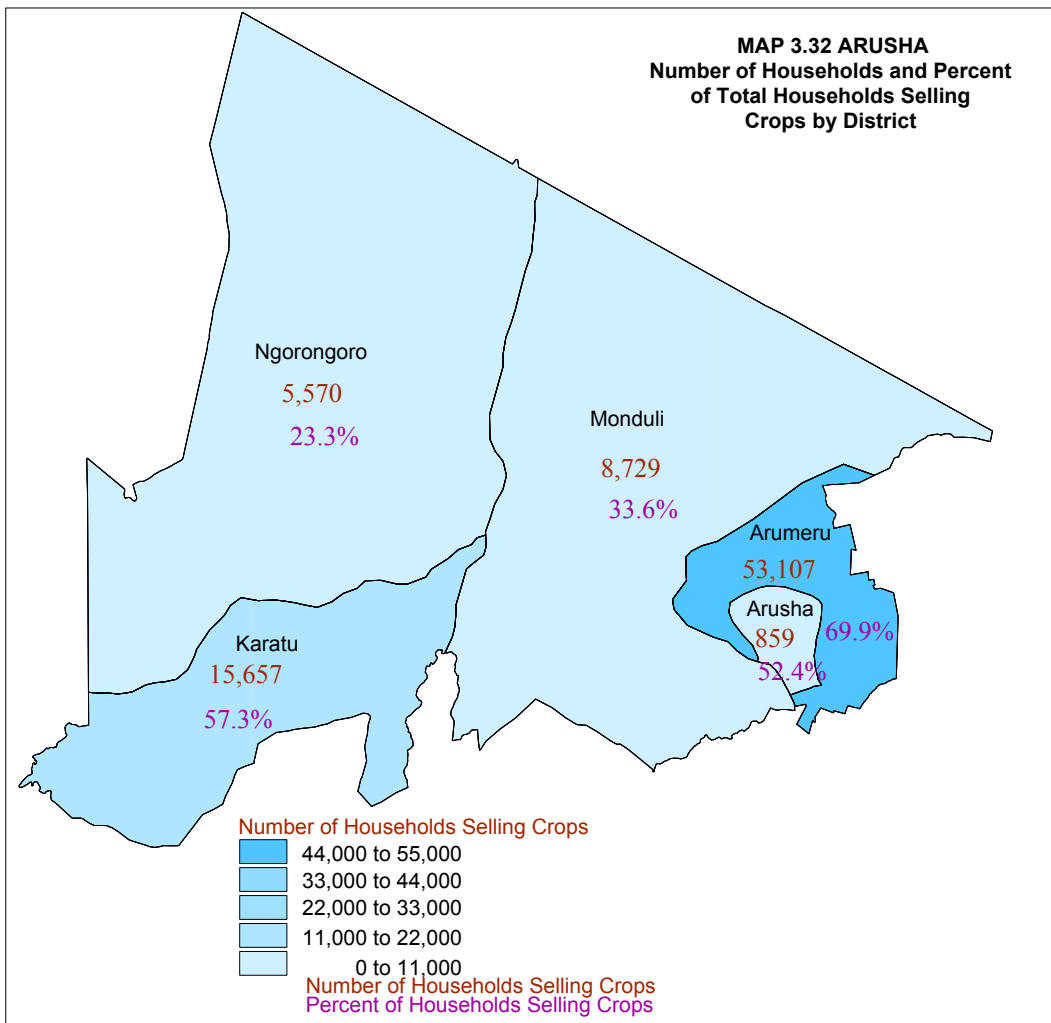
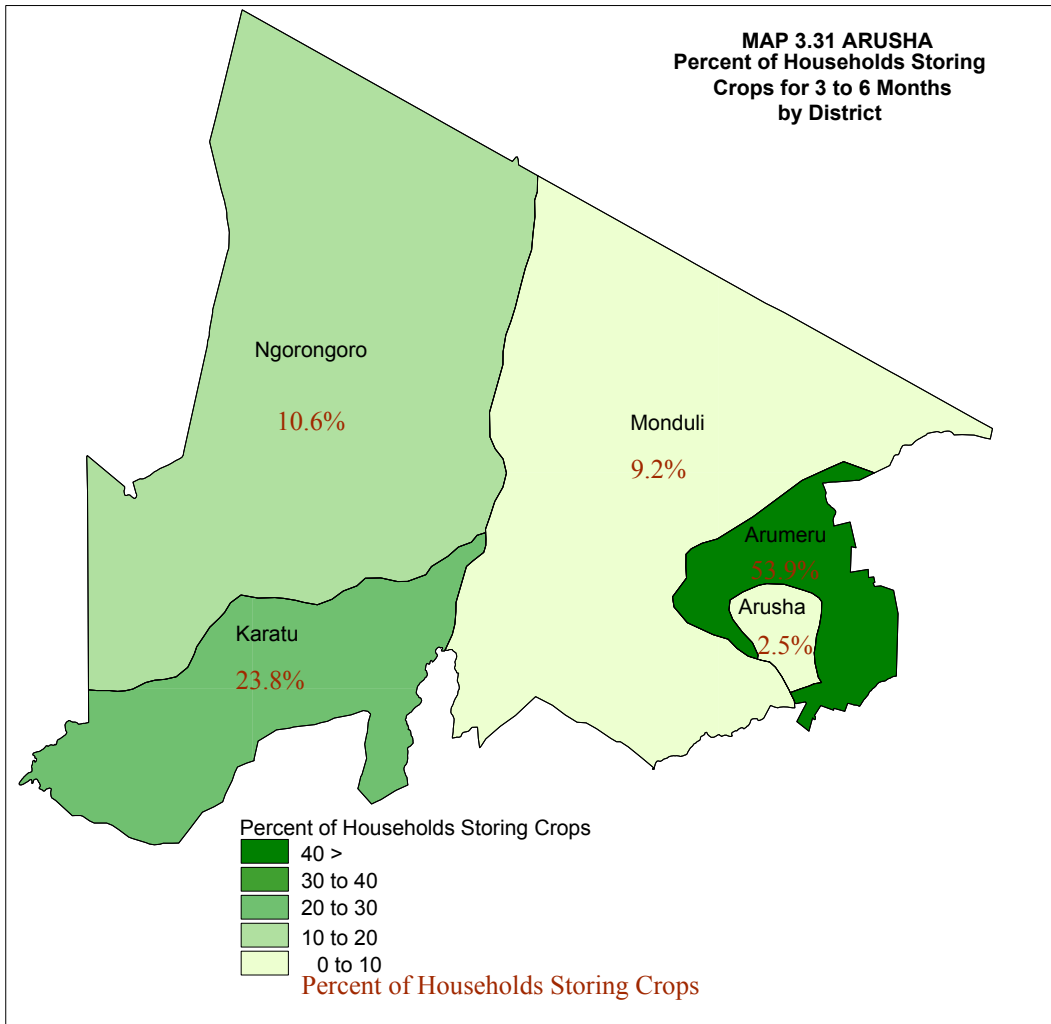
3.7.3.2 Reasons for Not Selling Crops

The main reason for not selling crops was reported as “insufficient production to sell”, representing 84 percent of the smallholders. The remaining reasons for not selling are in such low numbers that it is not appropriate to rank their importance (Table 3.11).

Table 3.11 Reasons for Not Selling Crop Produce

Main Reason	Household Number	%
Production Insufficient to Sell	54,229	83.9
Other	6,461	10.0
Price Too Low	2,557	4.0
Government Regulatory Board Problems	505	0.8
Market Too Far	444	0.7
Trade Union Problems	375	0.6
Co-operative Union Problems	59	0.1
Total	64,630	100

This general trend applies to all districts except for Monduli and Ngorongoro where the proportion of households reporting other reasons for not marketing their agricultural products is relatively high (31% and 10% respectively).



3.8 Access to Crop Production Services

3.8.1 Access to Agricultural Credit

The census result shows that in Arusha region very few agricultural households (444, 0.4%) accessed credit out of which 270 (61%) were male-headed households and 174 (39%) were female headed households.

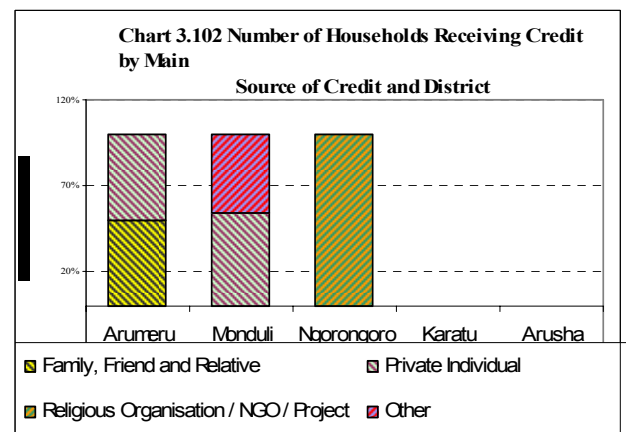
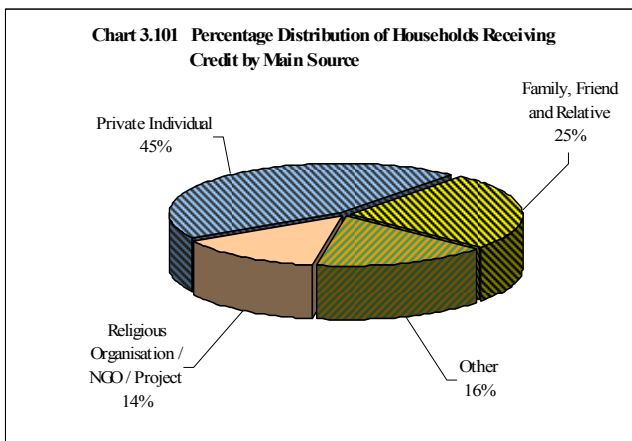
In Ngorongoro district only female headed households got agricultural credit whereas in Monduli, only male households accessed credit. In Arumeru district both male and female headed households accessed agricultural credit (Table 3.12).

Table 3.12 Number of Agricultural Households that Received Credit by Sex of Household Head and District

District	Male		Female		Total
	Number	%	Number	%	
Monduli	158	100	0	0	158
Arumeru	112	50	112	50	225
Ngorongoro	0	0	62	100	62
Total	270	61	174	39	444

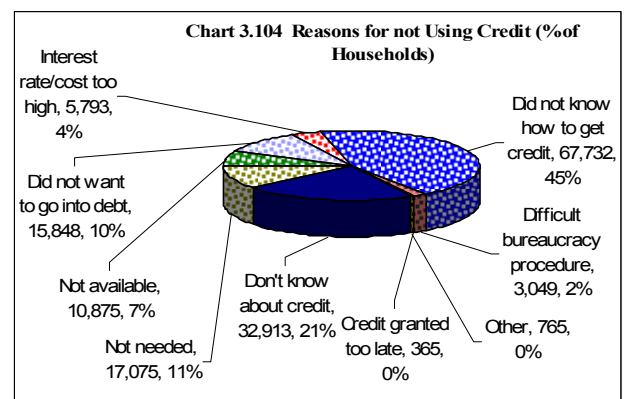
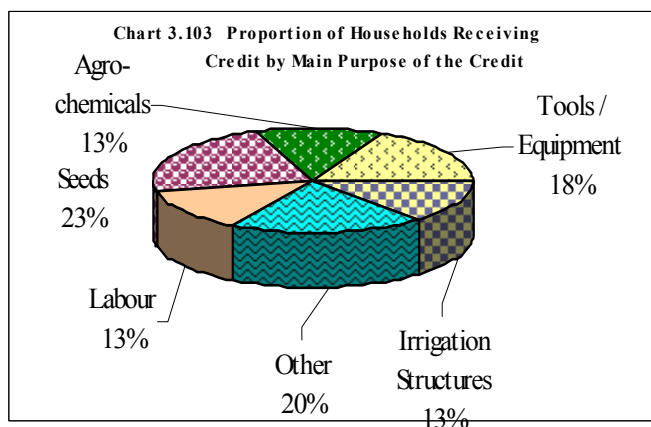
3.8.1.1 Source of Agricultural Credit

The major agricultural credit provider in Arusha region were private individuals, who collectively provided credit to 198 agricultural households (45% of the total number of households that accessed credit), followed by family, friends and relatives (25%), other sources (16%), religious organizations/NGO/project (14%) (Chart 3.101). Family friends and relatives were the sole source of credit in Arumeru district and religious organizations provided credit in Ngorongoro district only. Credits obtained in Monduli district were from other sources. (Chart 3.102).



3.8.1.2 Use of Agricultural Credit

A large proportion of the agricultural credit provided to agricultural households in the region were used on seeds (23%), followed by unspecified activities (20%), tools and equipment (18%), hiring labour (13%), irrigation structures (13%) and agro-chemicals (13%) (Chart 3.103).

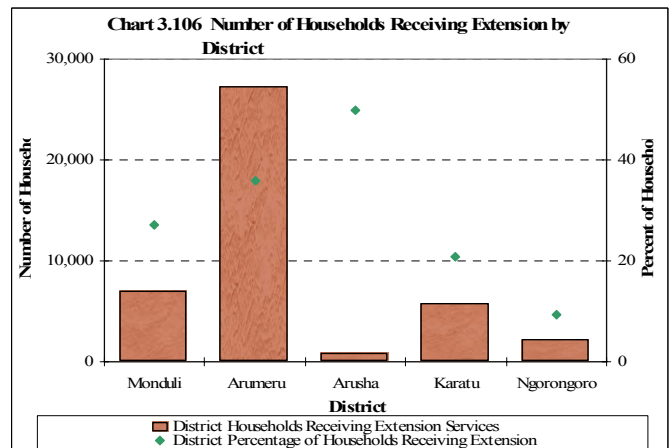
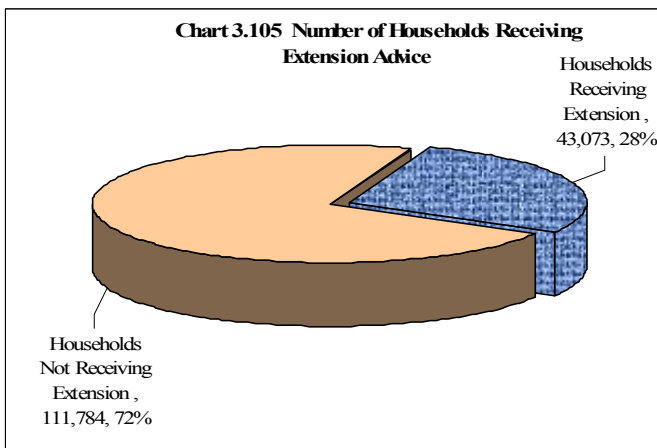


3.8.1.3 Reasons for Not Using Agricultural Credit

The main reason for not using agricultural credit as a source of finance was little credit awareness accounting to 65 percent of the agricultural households (“did not know how to get credit” and “don’t know about credit”). This was followed by households reporting the un-needed credit (11%), followed by “not wanting to go into debt” (10%) The rest of the reasons were collectively less than 8 percent of the households.

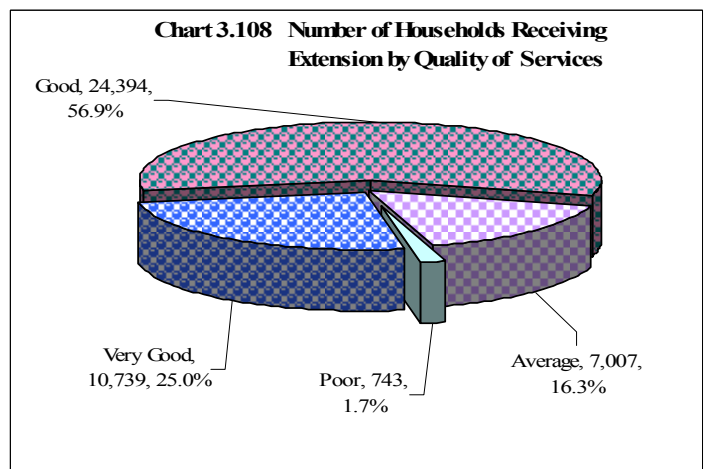
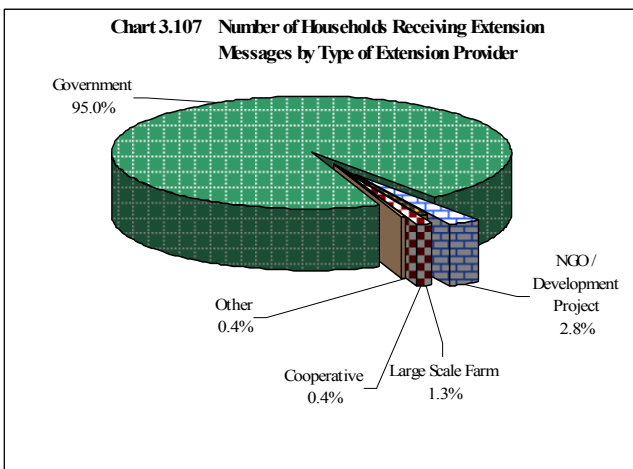
3.8.2 Crop Extension

The number of Agricultural households that received crop extension was 43,073 (28% of total crop growing households in the region) (Chart 3.105). Some districts have more access to extension services than others, with Arumeru having a relatively high proportion of households (63%) that received crop extension messages in the district followed by Monduli (16%), Karatu (13%), Ngorongoro (5%) and Arusha (2%) (Chart 3.106 and Map 4.33).



3.8.2.1 Sources of Crop Extension Messages

Of the households receiving extension advice the Government provided the greatest proportion (95%, 39,969 households). NGOs provided 2.8 percent, large scale farms 1.3 percent and the remaining providers less than 0.5 percent (Chart 3.107). However, district differences exist with the proportion of the households receiving advice from government services ranging from between 94 percent and 100 percent in Arumeru and Arusha respectively.



3.8.2.2 Quality of Extension

An assessment of the quality of extension indicates that 57 percent of the households receiving extension ranked the service as being good followed by very good (25 %), average (16%), and poor (2%) (Chart 3.108). However, care should be exercised when making decisions on quality of extension and also other variables in the extension report as all the enumerators were extension agents and some degree of bias is expected.

3.9 Access to Inputs

Access to inputs in this section refers to all crop growing households in Tanzania regardless of whether the household grew annual or permanent crops. In previous sections the reference was on annual crops only. Because of this, some of the figures presented in this section may be slightly different from the previous section on inputs use (Section 3.5). Data on source of inputs is only found in this section and it applies to both annual and permanent crops.

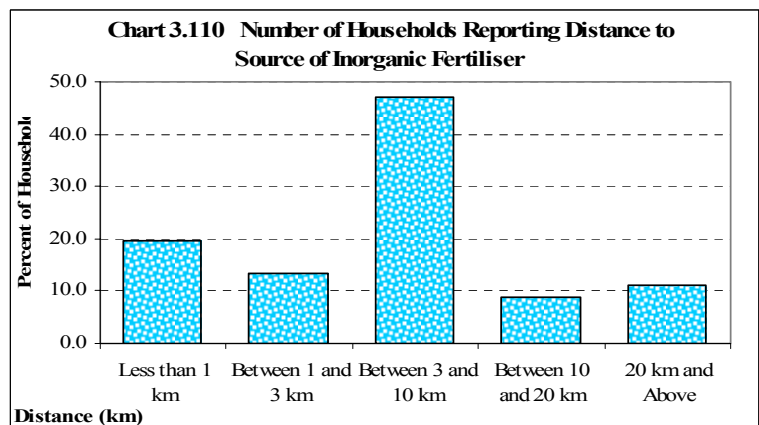
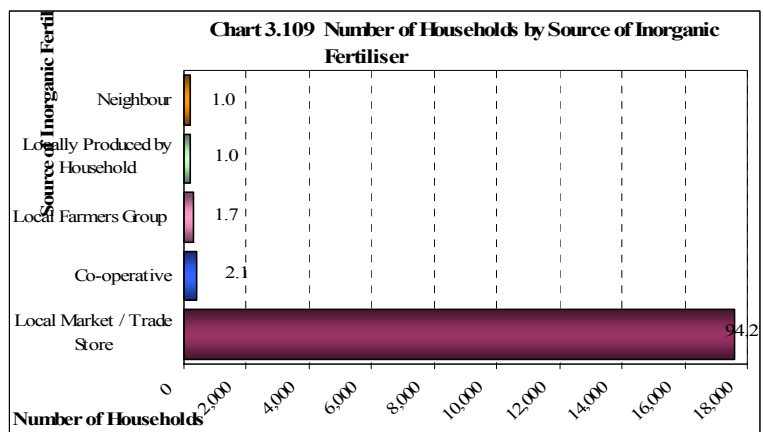
Type of Input	Households With Access to Input		Households Without Access to Inputs	
	Number	%	Number	%
Farm Yard Manure	66,312	52.3	60,536	47.7
Improved Seeds	36,330	29	90,406	71
Pesticides/Fungicide	6,218	4.9	120,631	95.1
Compost	2,694	2.1	124,154	97.9
Inorganic Fertiliser	20,218	15.9	106,630	84.1
Herbicide	3,924	3	122,924	97

A small number of households use inputs and this is particularly true of inputs that are not produced on farm i.e., improved seeds, fungicides, inorganic fertiliser and herbicides. In Arusha region farm yard manure is used by 66,312 households which represent 52.3 percent of the total number of crop growing households. For Arusha region almost half of the farming households use farm yard manure. This is followed by households using improved seeds (29%), inorganic fertilizer (15.9%), fungicide (4.9%), herbicide (3%), and compost (2.1%) (Table 2.14).

3.9.2 Inorganic Fertilisers

Smallholders that use inorganic fertiliser in Arusha mostly purchase from the local market/trade store (94.2% of the total number of inorganic fertiliser users). The remaining sources of inorganic fertilisers are minor (Chart 3.109).

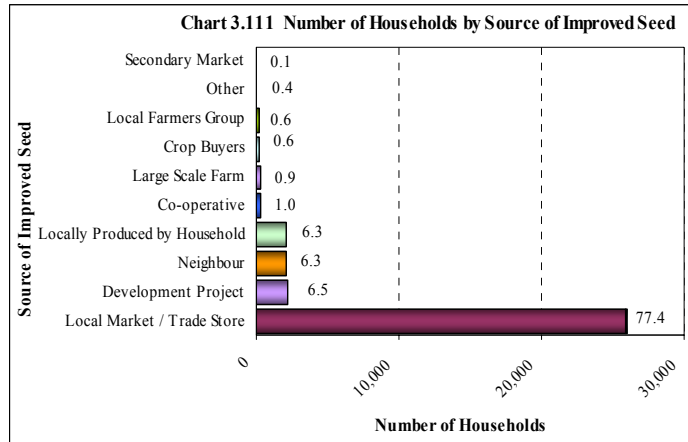
Access to inorganic fertiliser is mainly less than 10 km from the household with most households residing between 3 and 10 km from the source (47%), followed by less than 1 km (19.6%) and between 1 and 3 km (13.5%) (Chart 3.110). Due to the very small number of households using inorganic fertilisers coupled with the small number of households responding to “not available” (12%) as the reason for not using, it may be assumed that access to inorganic fertiliser is not the main reason for not using it. Other reasons such as cost are more important



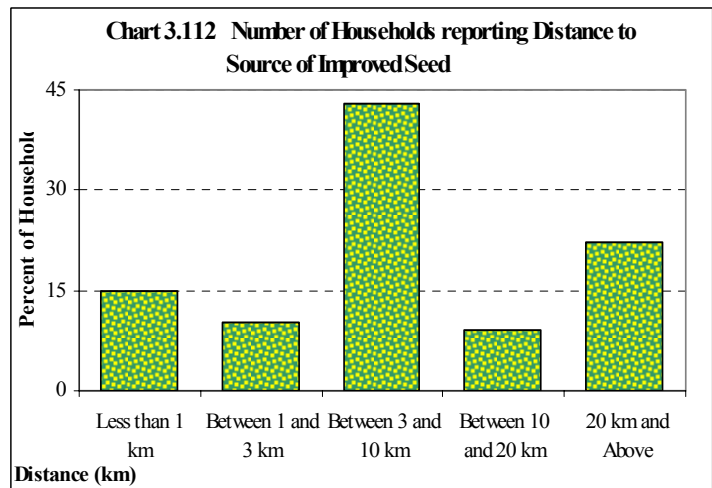
with 70 percent of households responding to cost factors as the main reason for not using. In other words, it is assumed that if the cost was affordable the demand would be higher and access to inorganic fertiliser would be made more available. More smallholders use inorganic fertilisers in Arumeru than in other districts in Arusha region (49% of households using inorganic fertilisers), followed by Karatu (18%), Monduli (17% and Ngorongoro (15%). Arusha district uses very little inorganic fertiliser.

3.9.3 Improved Seeds (Chart 3.111 not changed to Arusha figures) SCALE

The percent of households that use improved seeds was 24 percent of the total number of crop growing households. Most of the improved seeds are from the local market/trade store (89.3%). Other less important sources of improved seeds are from Large Scale Farms (5.7%) and neighbours (5.0%) (Chart 3.111).



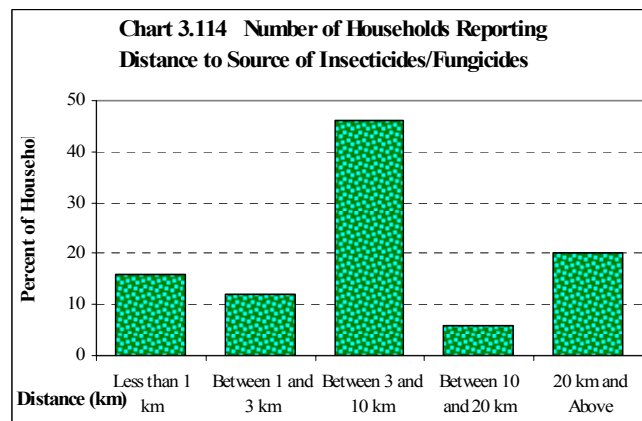
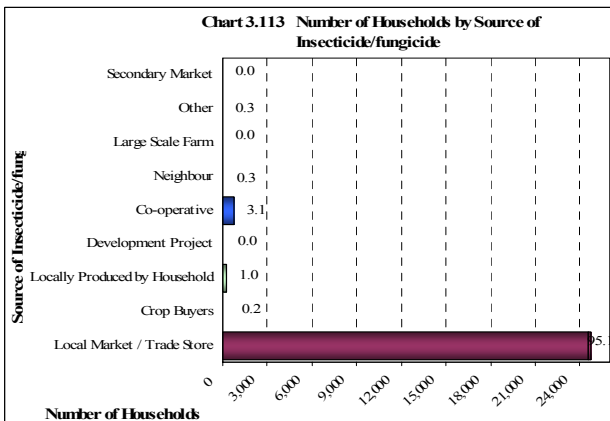
Like access to inorganic fertilizer, distance to source of improved seeds is more or less the same, with 43 percent of households obtaining the input between 3 and 10 km from the household (Chart 3.112).



The districts that mostly use improved seeds are Arumeru (60.4 percent of the total number of households using improved seeds in Arusha region), followed by Karatu (22.4%) Monduli (8.3%) and Ngorongoro (7.8%). Use of improved seeds in Arusha district is of minor importance (Map 3.34).

Insecticides and Fungicide

Most smallholder households using insecticides and fungicides mainly purchase them from local markets/trade stores (93.7% of the total number of fungicide users). Other sources of insecticides/ fungicides are of minor importance (Chart 3.113).



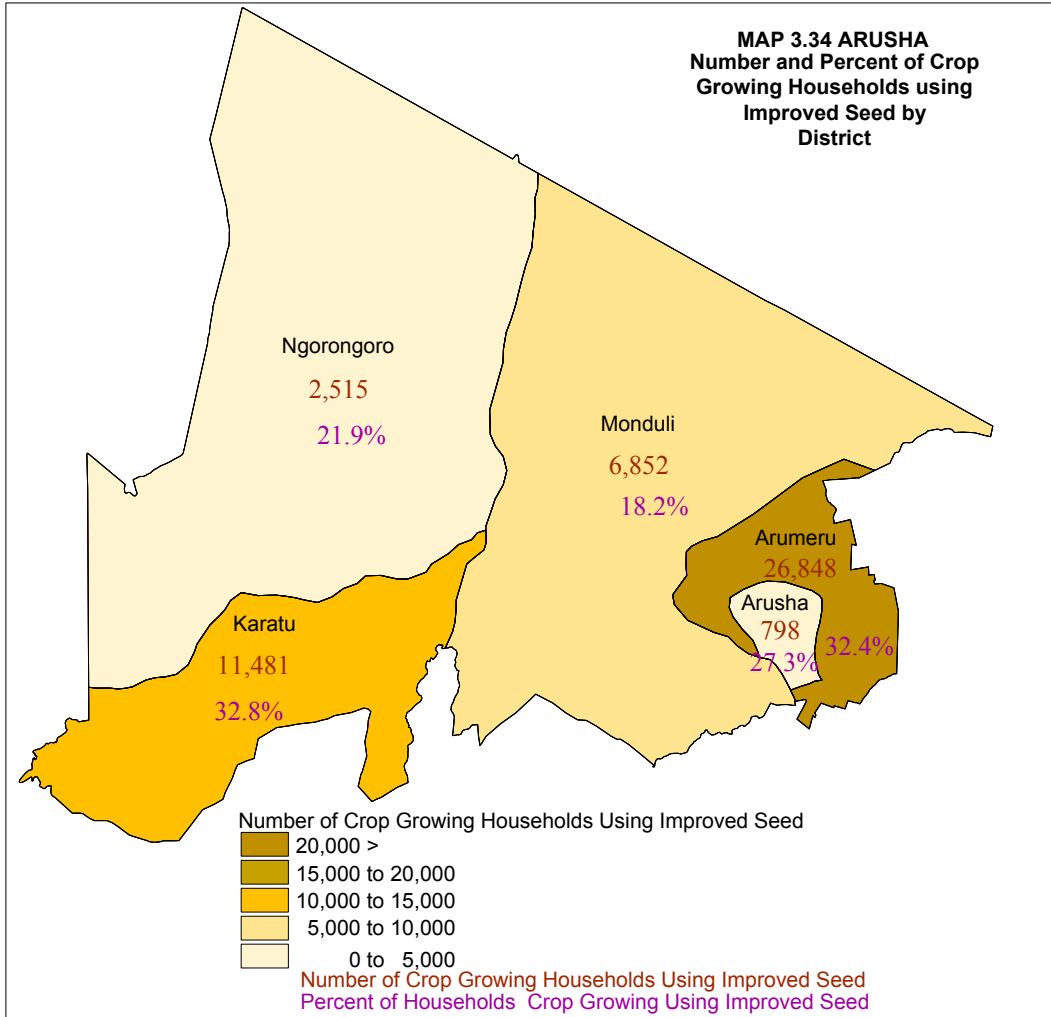
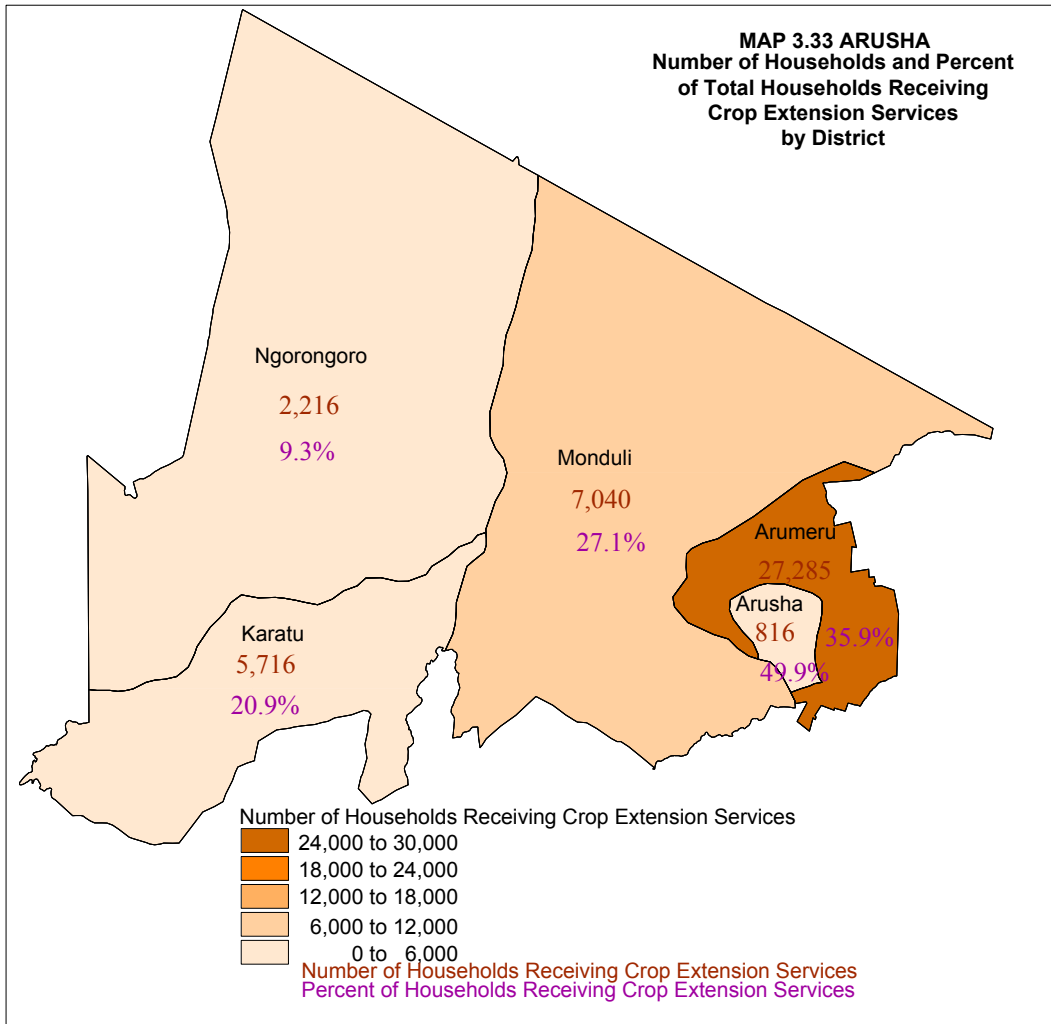
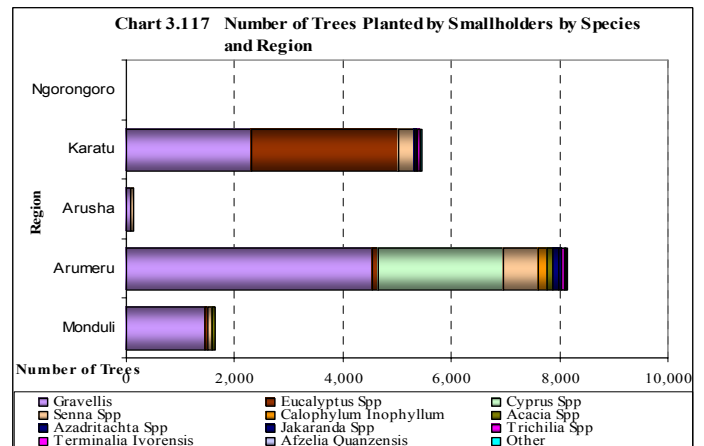
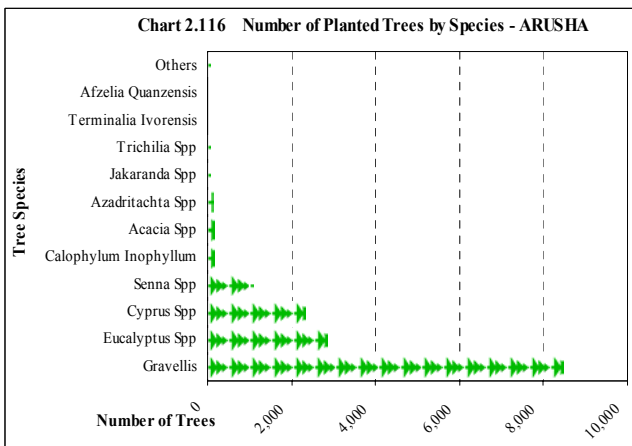
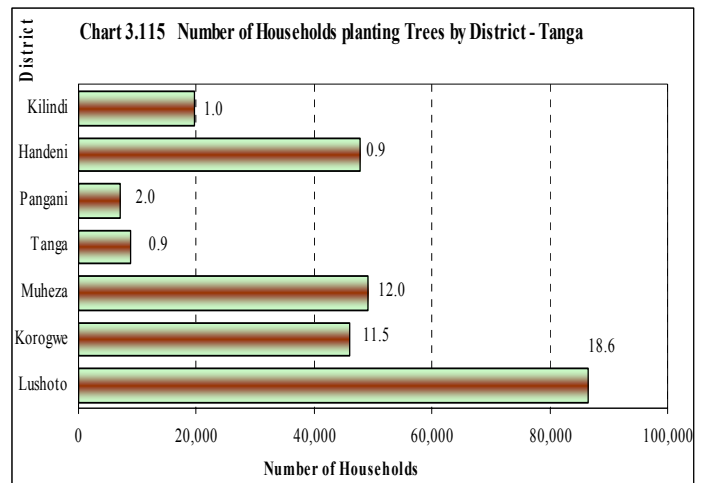


Chart 3.114 shows that there is no distinct pattern for the number of households with varying distances from the source of insecticide/fungicide. The small number of households using insecticides/fungicides coupled with the 7 percent of households responding to “not available” as the reason for not using it may be assumed that access is not the main reason for not using. Other reasons such as cost are more important with 63 percent of households responding to cost factors as the main reason for not using. In other words, it is assumed that if the cost was affordable, the demand would be higher and access to insecticides/fungicides would be made more available. Fungicide is used more in Arumeru district (65.8 percent of the total number of households that use fungicide in the region), followed by Karatu (21.8%) and Monduli (8.6%). Insecticides/fungicides use in other districts is of minor importance.

3.10 Tree Planting

The number of households involved in tree farming was 254 representing 0.2 percent of the total number of agriculture households (Chart 3.115).

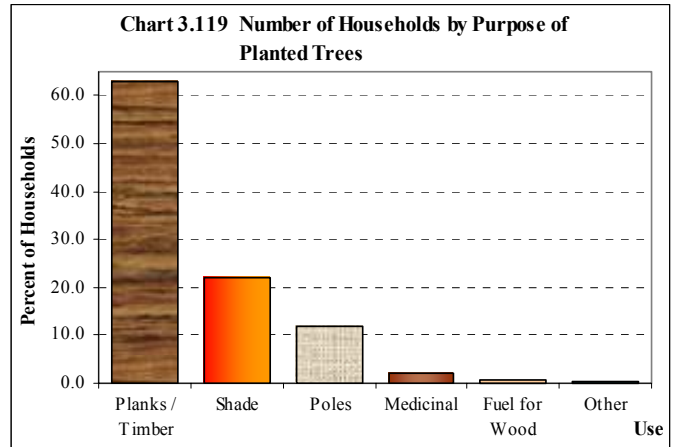
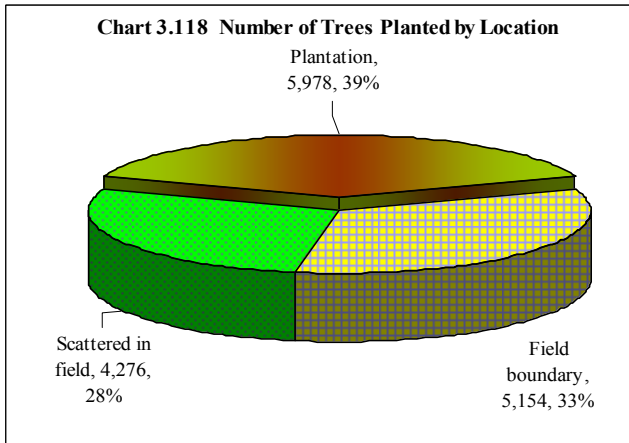
The number of trees planted by smallholders on their allotted land was 15,408 trees. The average number of trees planted per household planting trees was 61 trees.



The main species planted by smallholders is Gravellia spp (8,455 trees, 55%), followed by Eucalyptus (2,843, 18%), then Cyprus (2,319, 15%) and Senna spp (1,073 trees, 7%). The remaining trees species are planted in comparatively small numbers (Chart116.). Arumeru has the largest number of smallholders with planted trees than any other district (52.9%) and is dominated by Gravellia species. This is followed by Karatu (35.4%) which is dominated by Eucalyptus and to a lesser extent Gravellia, then Monduli (10.6%) and Arusha (0.9%) which is mainly planted with Gravellia (Chart 3.117 and Map 3.35.).

Smallholders mostly plant trees on the plantation. The proportion of households that plant on field plantation is 39 percent, followed by field boundary (33%) and then scattered trees (28%) (Chart 3.118).

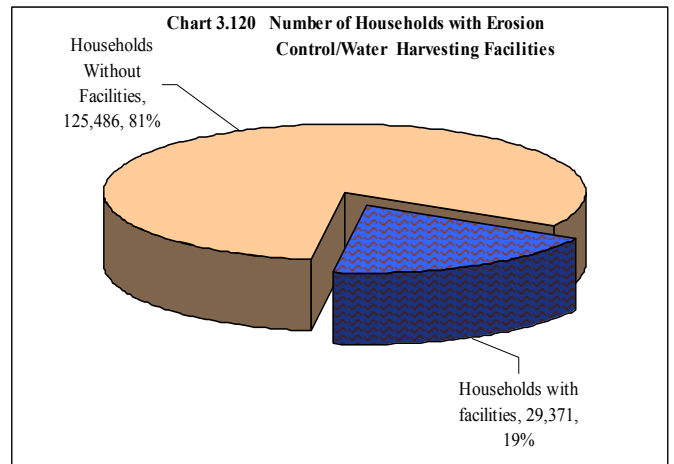
The main purpose of planting trees is to obtain planks/timber (62.9%). This is followed by shade (22.1%), poles (12.1%) and medical (2.0%) (Chart 3.119).



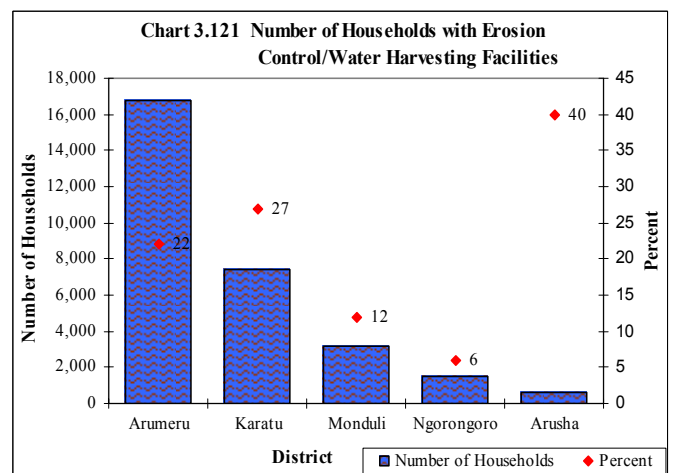
3.11 Irrigation and Erosion Control Facilities

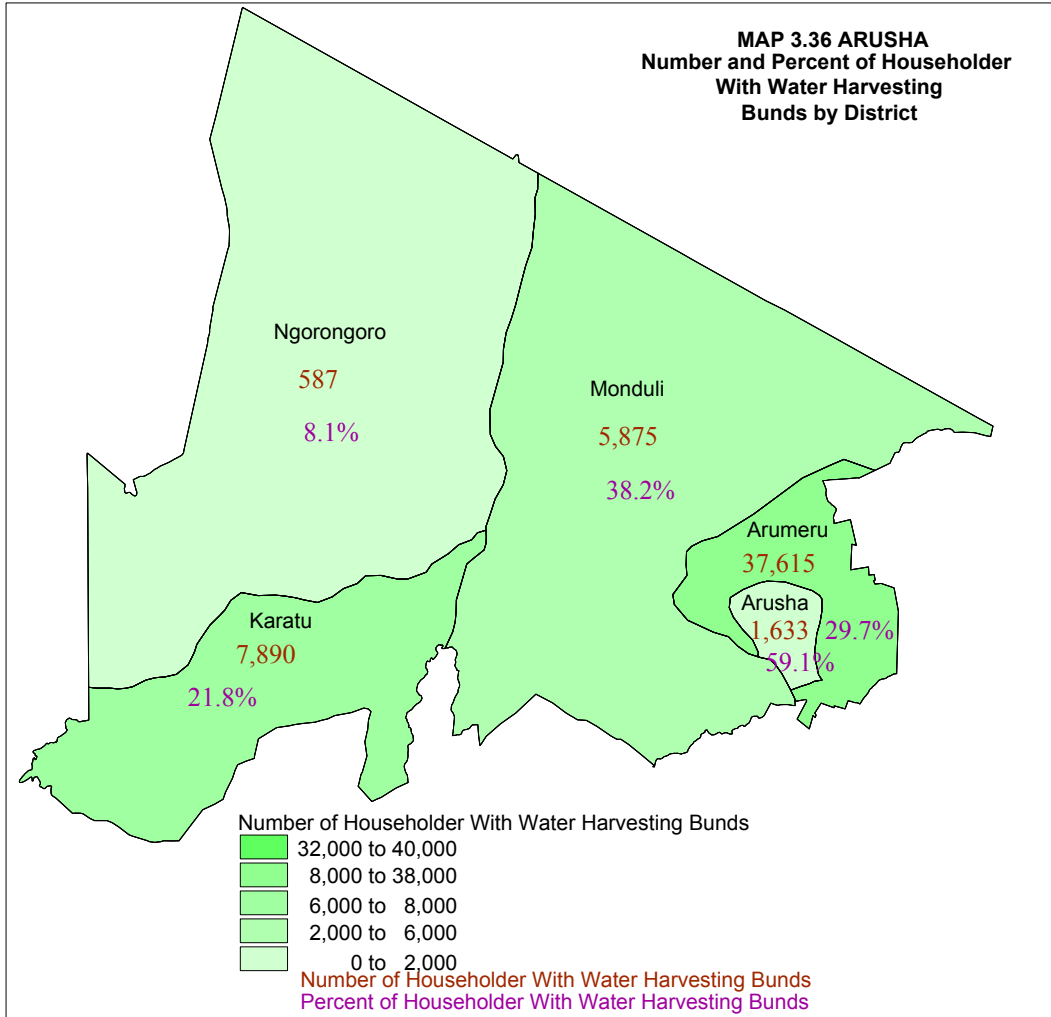
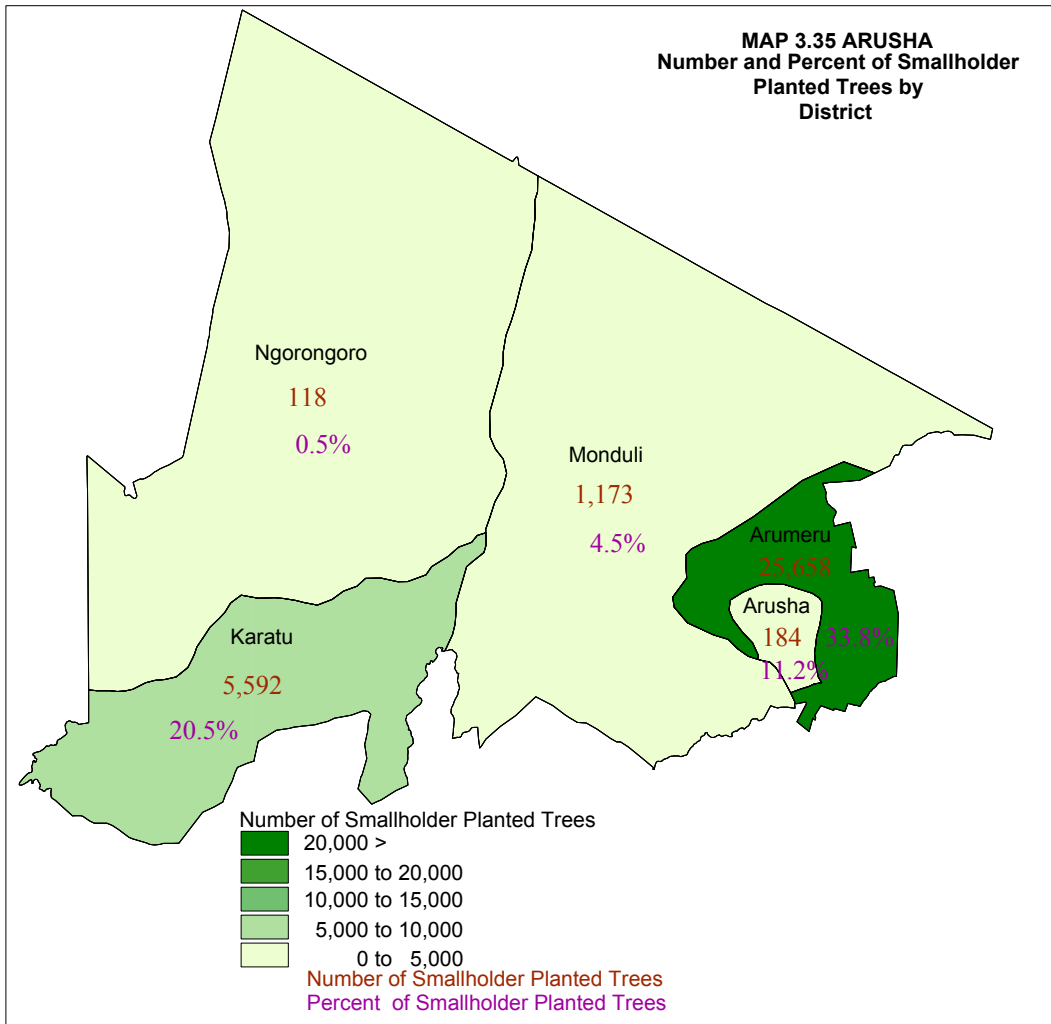
Erosion control and water harvesting facilities are grouped together as they normally have dual purposes of reducing erosion and increasing the amount of water available for crop production.

The number of agricultural households that had soil erosion and water harvesting facilities on their farms was 29,371 which represents 19 percent of the total number of agricultural households in the region (Chart 3.120).



The proportion of households with soil erosion control and water harvesting facilities was highest in Arusha district (40%) followed by Karatu (27%), Arumeru (22%), Monduli (12%) and Ngorongoro (6) (Chart 3.121). Erosion control bunds accounted for 42 percent of the total number of structures, followed by water harvesting bunds (28.5%), tree belts (19%), drainage ditches (5.5%), terraces (3.4%), vetiver grass (1.4%), gabions/sandbags (0.1%) and dams (0.1%) (Chart 3.122 and Map 3.36).





Erosion control by Erosion control bunds, water harvesting bunds and tree belts together had 168,384 structures. This represented 89.5 percent of the total structures in the region. The remaining 10.5 percentages were shared among the rest of the erosion control methods mentioned above. Arumeru and Karatu districts had 162,703 erosion control structures (86 percent of the total erosion structures in the region).

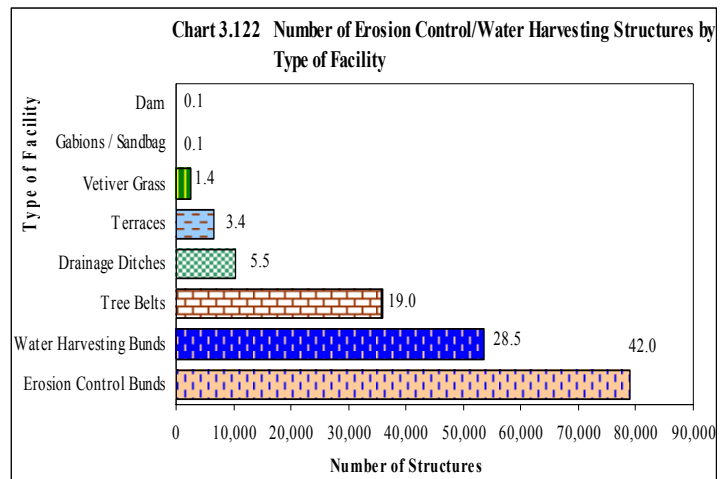
3.12 LIVESTOCK RESULTS

3.12.1 Cattle Production

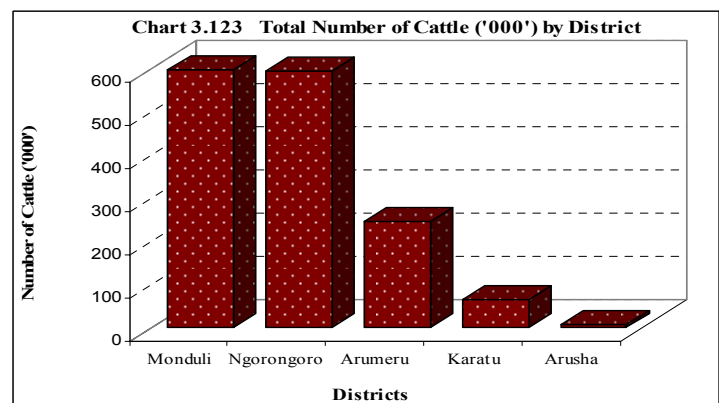
The total number of cattle in the region was 1,593,633. Cattle are the second dominant livestock type in the region after goats and followed by sheep and pigs. The region had 9.5 percent of the total cattle population on Tanzania Mainland.

3.12.1.1 Cattle Population

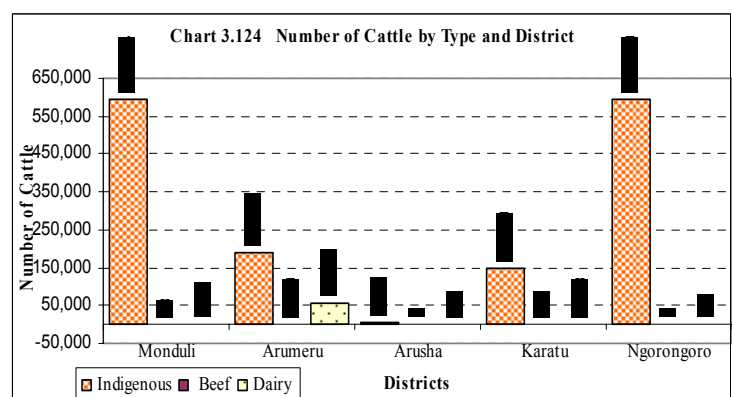
The number of indigenous cattle in Arusha region was 1,532,103 (96.1 % of the total number of cattle in the region), 58,677 cattle (3.7%) were dairy breeds and 2,853 cattle (0.2%) were beef breeds.

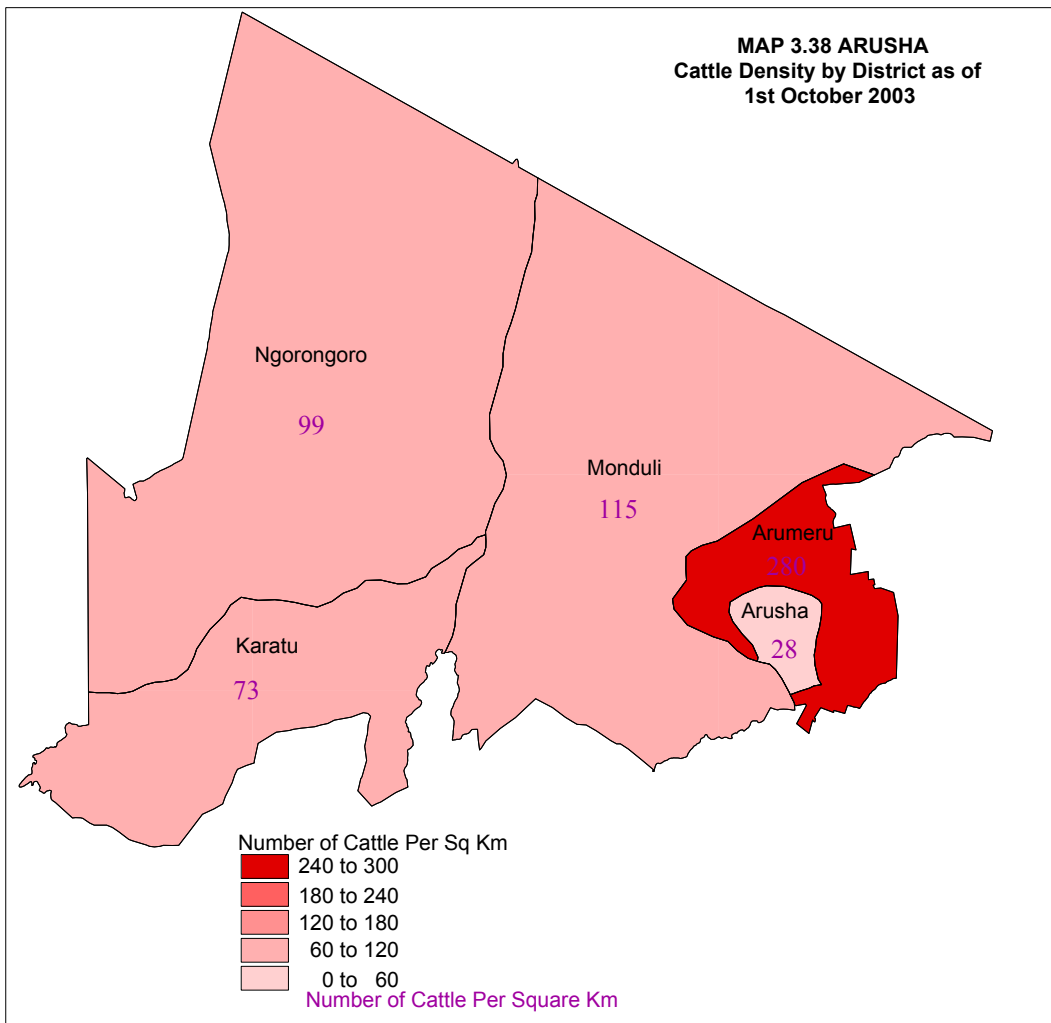
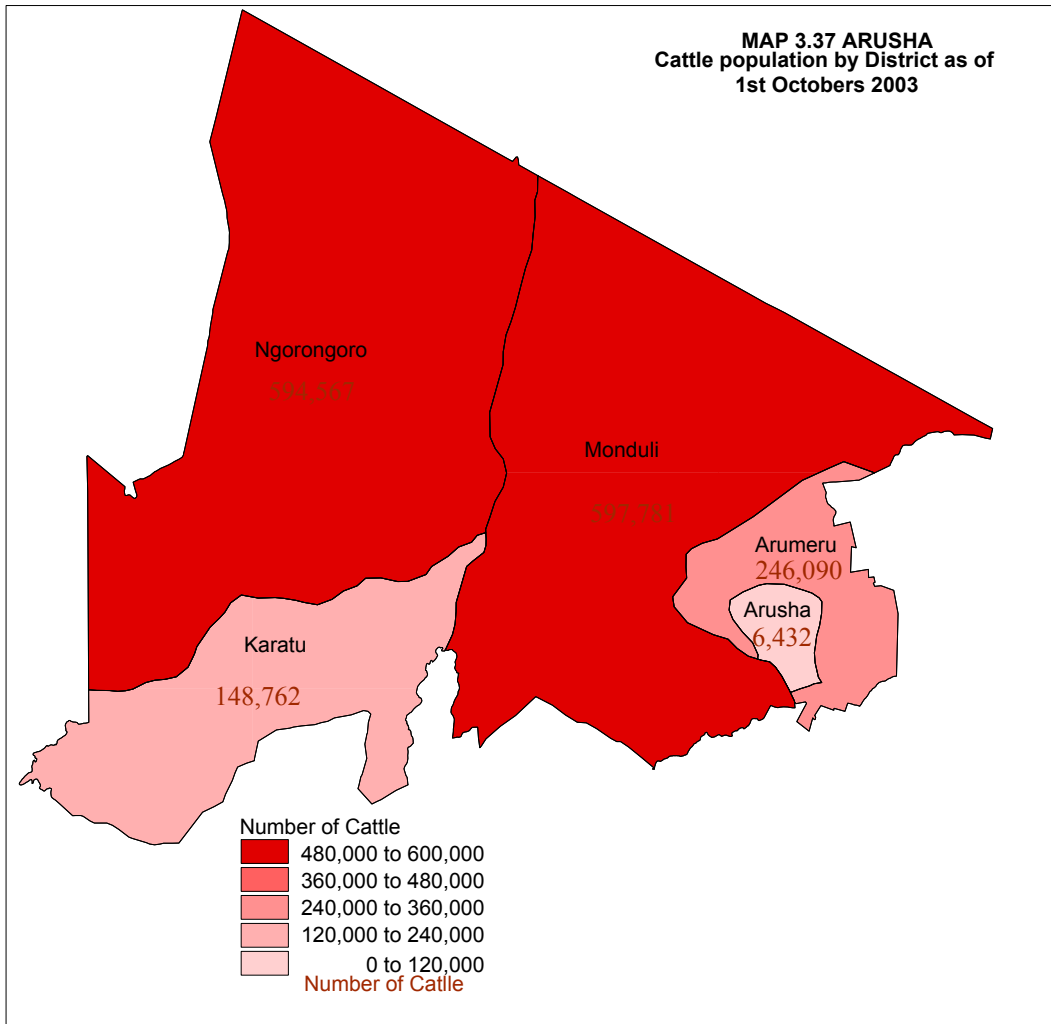


The census results show that 124,344 agricultural households in the region (80.3% of total agricultural households) kept 1.6 million cattle. This was equivalent to an average of 13 heads of cattle per cattle-keeping-household. The district with the largest number of cattle was Monduli which had about 597,781 cattle (37.5% of the total cattle in the region). This was followed by 594,567 cattle (37.3%), Arumeru (246,090 cattle, 15.4%), Karatu (148,762 cattle, 9.3%). Arusha district had the least number of cattle (6,432 cattle, 0.4%) (Chart 3.123 and Map 3.37). However Arumeru district had the highest density (280 head per km²) (Map 3.38).



Although Monduli district had the largest number of cattle in the region, most of it was indigenous. The number of dairy cattle was very small and the number of beef cattle was insignificant. Arumeru district had the largest number of diary cattle in the region. In general, the number of beef cattle in the region was insignificant (Chart 3.124).





3.12.1.2 Herd Size

Fifty percent of the cattle-rearing households had herds of size 1-5 cattle with an average of 3 cattle per household. Herd sizes of 6-30 accounted for about 33 percent of all cattle in the region. Only 7 percent of the cattle rearing households had herd sizes of 31- 100 cattle. About 91. percent of total cattle rearing households had herds of size 1-30 cattle and owns 43 percent of total cattle in the region, resulting in an average of 7 cattle per cattle rearing household. There were about 832 households with a herd size of more than 151 cattle each (106,931 cattle in total) resulting in an average of 129 cattle per household.

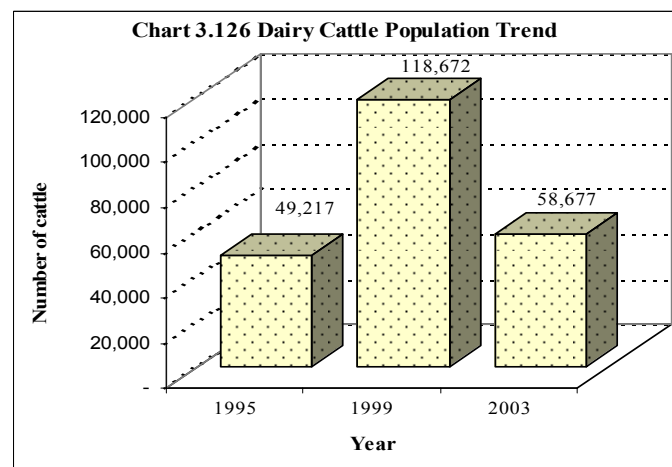
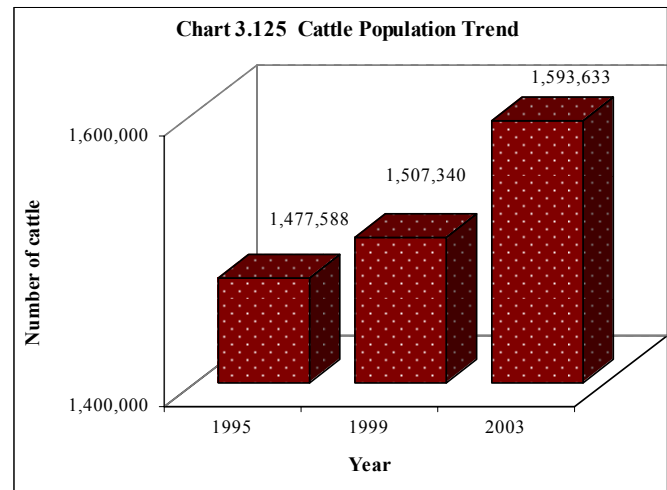
3.12.1.3 Cattle Population Trend

Cattle population in Arusha increased during the period of eight years from 1,477,588 in 1995 to 1,593,633 cattle in 2003. This trend depicts an overall annual positive growth rate of 0.9 percent (Chart 3.125).

However, there was a sharp increase in number of cattle for the period of four years from 1999 to 2003 at the rate of 1.4 percent whereby the number increased from 1,507,340 to 1,593,633.

3.12.1.4 Improved Cattle Breeds

The total number of improved cattle in Arusha region was 61,529 (58,677 dairy and 2,853 improved beef). The dairy cattle constituted 3.7 percent of the total cattle and 95.4 percent of improved cattle in the region. The number of beef cattle in the region was insignificant constituting only 4.6 percent of the total number of the improved cattle and 0.2 percent of the total cattle. The number of improved cattle increased from 49,217 in 1995 to 118,672 in 1999 at an annual growth rate of 24.6 percent. Then decreased from 118,672 to in 1999 to 58,677 in 2003 (-16.1%) (Chart 126).

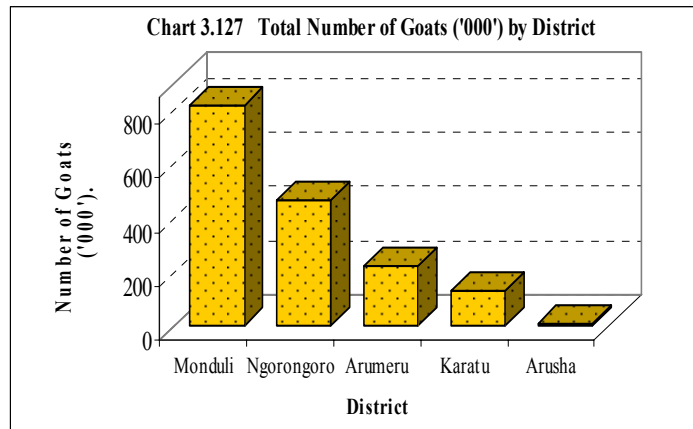


3.12.2. Goat Production

Goat rearing was the first important livestock keeping activity in the region followed by cattle, sheep and pig rearing. In terms of total number of goats on the Mainland, Arusha region ranked 1 out of the 21 regions with 14 percent of the total goats on the Mainland.

3.12.2.1 Goat Population

The number of goat-rearing-households in Arusha region was 93,477 (60% of all agricultural households in the region) with a total of 1,650,445 goats giving an average of 18 head of goats per goat-rearing-household. Monduli had the largest number of goats (817,976 goats, 50% of all goats in the region), followed by Ngorongoro (466,011 goats, 28%), Arumeru (225,948 goats, 14%), and Karatu (132,942 goats, 8%). Arusha district had the least number of goats (7,569 goats, 0%) (Chart 3.127 and Map 3.39).



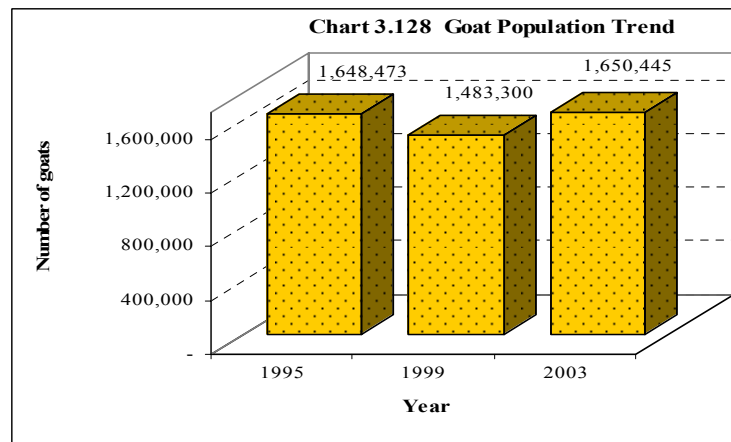
However Arumeru district had the highest density (257 head per km²) (Map 3.40).

3.12.2.2 Goat Herd Size

Thirty percent of the goat-rearing households had herd size of 1-4 goats with an average of 3 goats per goat rearing household. Seventy three percent of total goat-rearing households had herd size of 1-14 goats and owned 24 percent of the total goats in the region resulting in an average of 6 goats per goat-rearing households. The region had 7830 households (8.4%) with herd sizes of 40 or more goats each (862,885 goats in total), resulting in an average of 110 goats per household.

3.12.2.3 Goat Breeds

Goat husbandry in the region was dominated by the indigenous breeds that constituted 99 percent of the total goats in Arusha region. Improved goats for meat and dairy goats constituted 0.1 and 0.9 percent of total goats respectively.

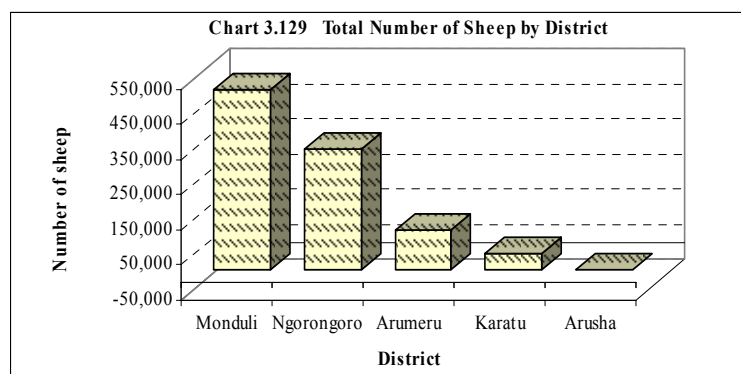


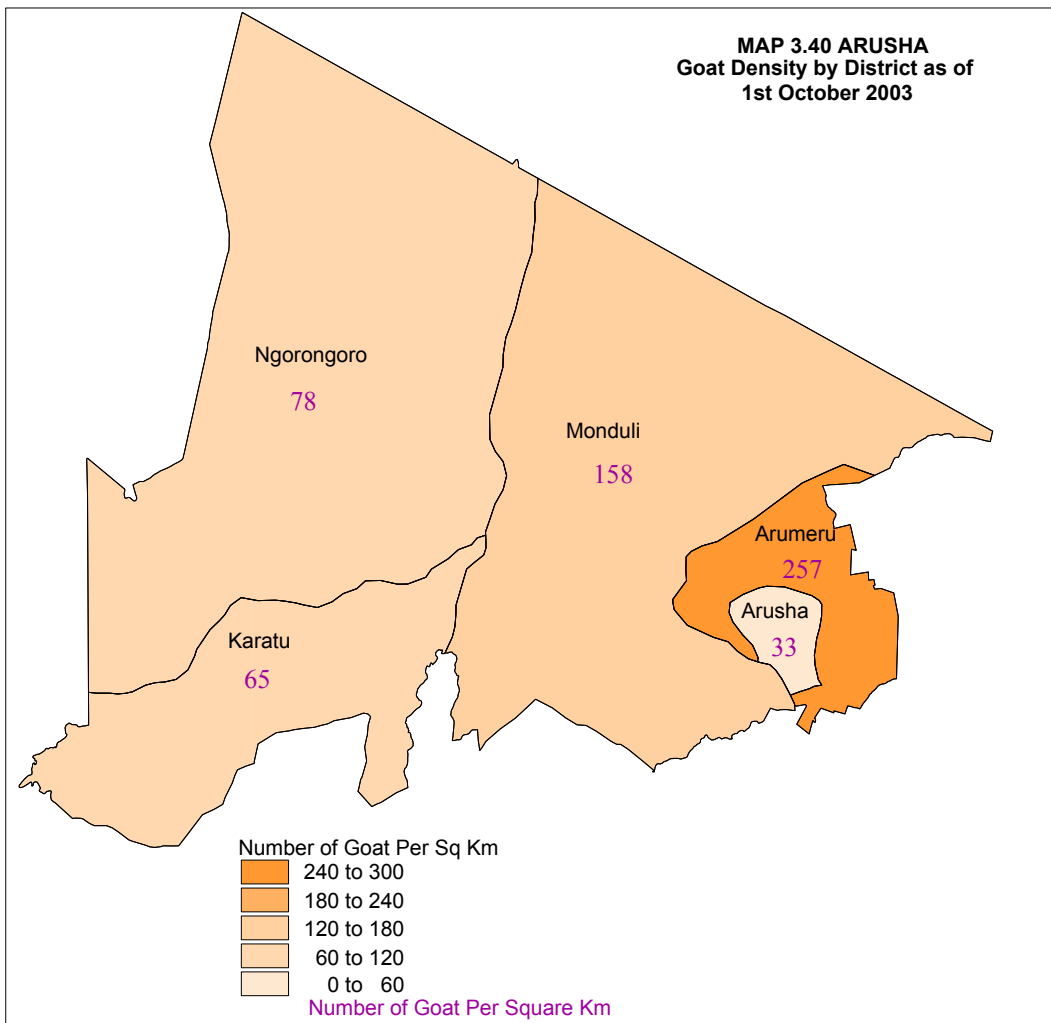
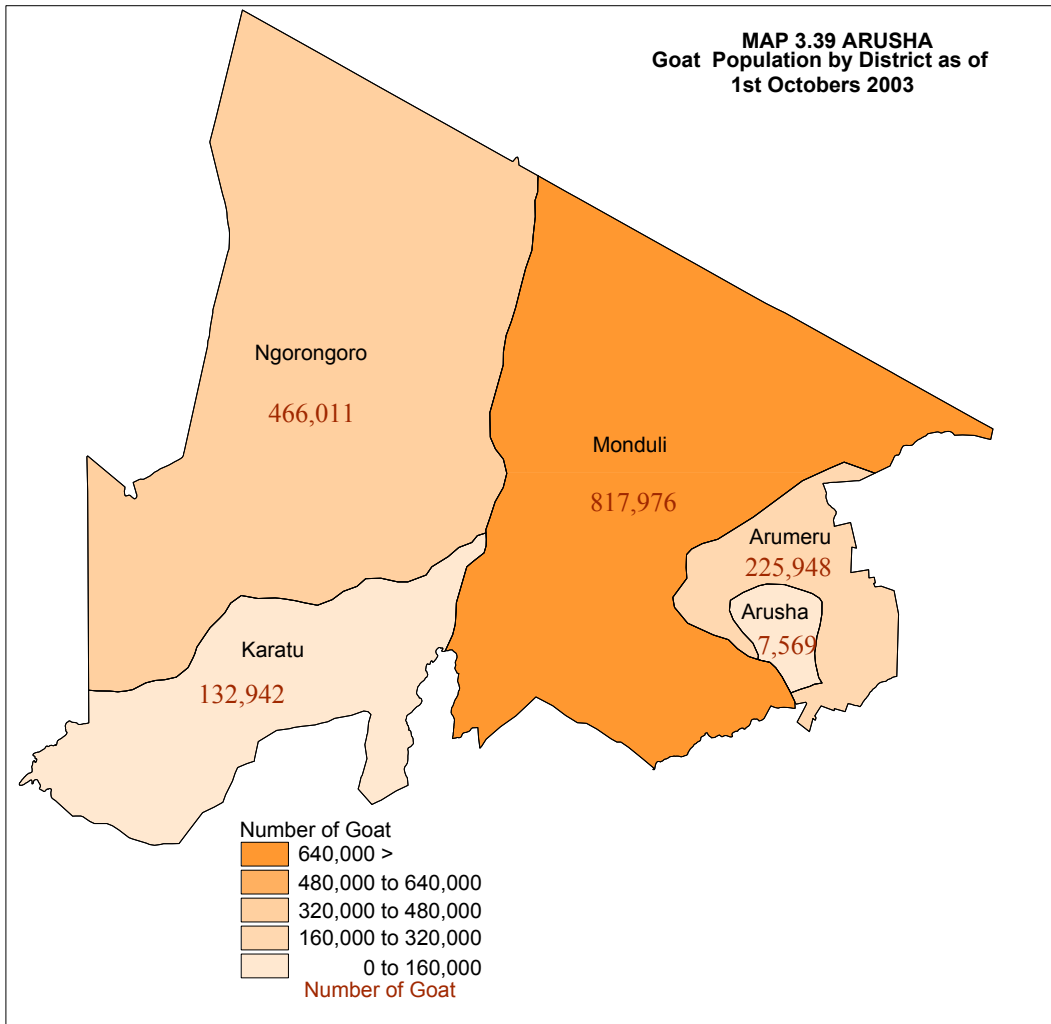
3.12.2.4 Goat Population Trend

The overall annual growth rate of goat population from 1995 to 2003 was 0.01 percent. This positive trend implies eight years of population increase from 1,648,473 in 1995 to 1,650,445 in 2003. The number of goats decreased from 1,648,473 in 1995 at an estimated annual rate of -2.6 percent to 1,483,300 in 1999. From 1999 to 2003, the goat population increased at an annual rate of 2.7 percent (Chart 128).

3.12.3. Sheep Production

Sheep rearing was the third important livestock keeping activity in Arusha region after goats and cattle. The region ranked 1 out of 21 Mainland regions and had 26 percent of all sheep on Tanzania Mainland.





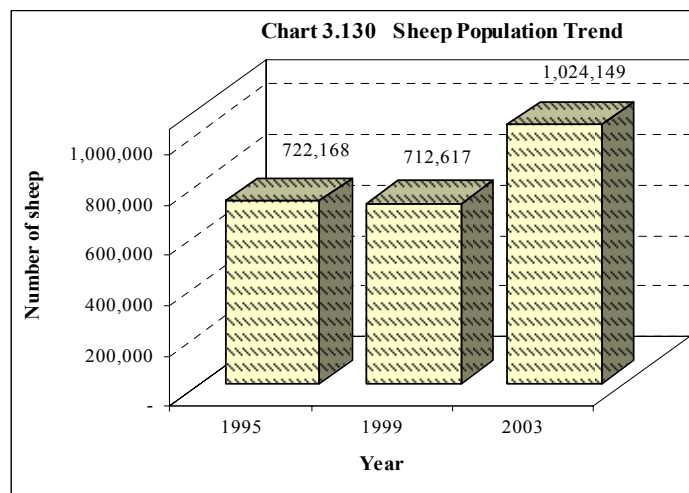
3.12.3.1 Sheep Population

The number of sheep-rearing households was 69,378 (49% of all agricultural households in Arusha region) rearing 1,024,149 sheep, giving an average of 15 heads of sheep per sheep-rearing household. The district with the largest number of sheep was Monduli with 513,553 sheep (50% of total sheep in Arusha region) followed by Ngorongoro (344,752 sheep, 34%), Arumeru (115,661 sheep, 11%) and Karatu (47,365 sheep, 5%). Arusha District had the least number of sheep (2,818 sheep) (Chart 3.129 and Map 3.41). Arumeru district also had the highest density (131 head per km²) (Map 3.42).

Sheep rearing was dominated by indigenous breeds that constituted 99.2 percent of all sheep kept in the region. Only 0.8 percent of the total sheep in the region were improved breeds.

3.12.3.2 Sheep Population Trend

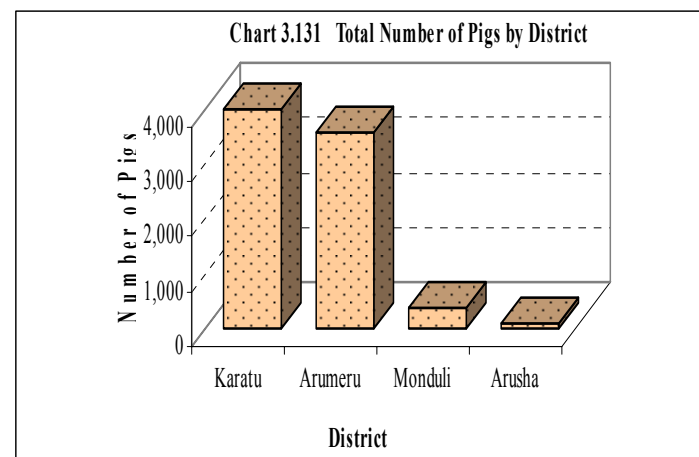
The overall annual growth rate of the sheep population for the eight year period from 1995 to 2003 is estimated at 4.5 percent. The population decreased at an annual rate of -0.3 percent from 722,168 in 1995 to 712,617 in 1999. From 1999 to 2003, sheep population increased at an annual rate of 9.5 percent from 712,617 to 1,024,149 (Chart 3.130).

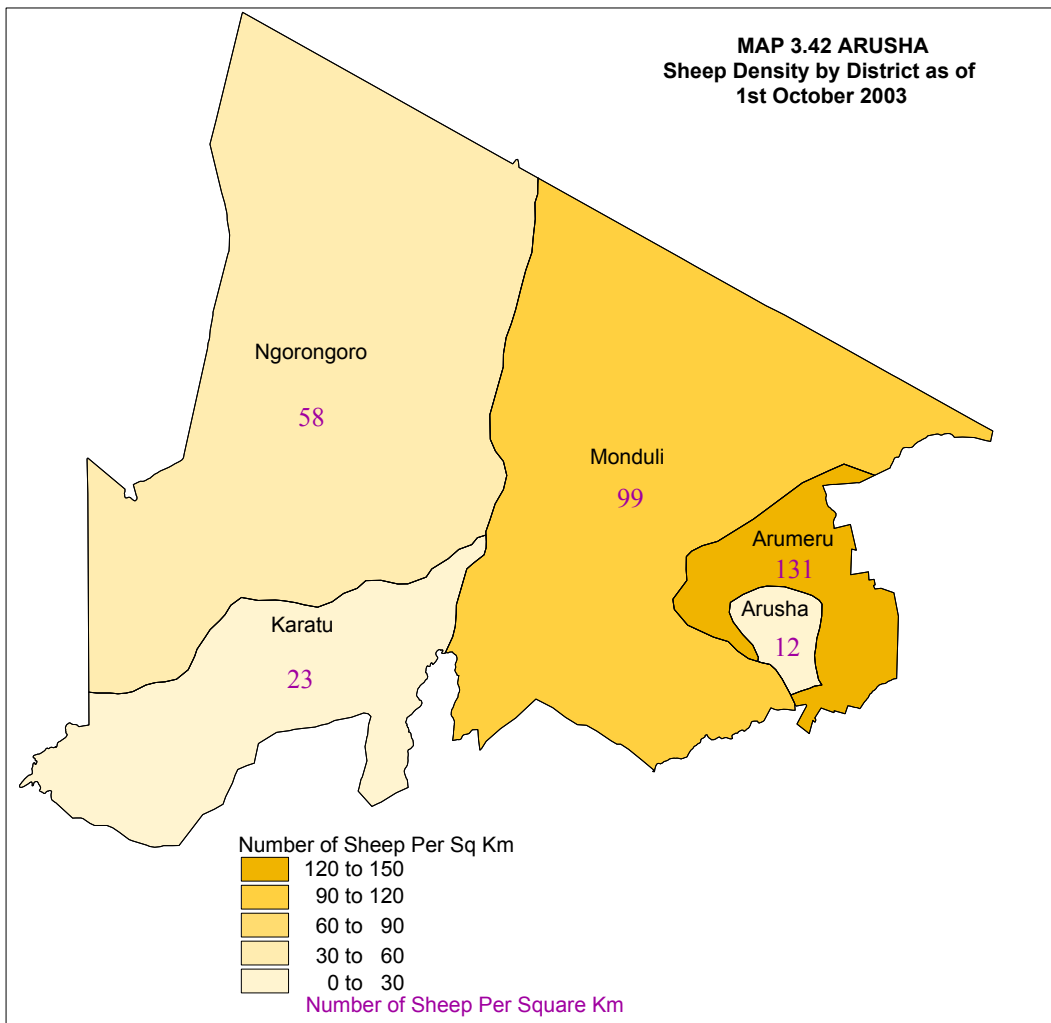
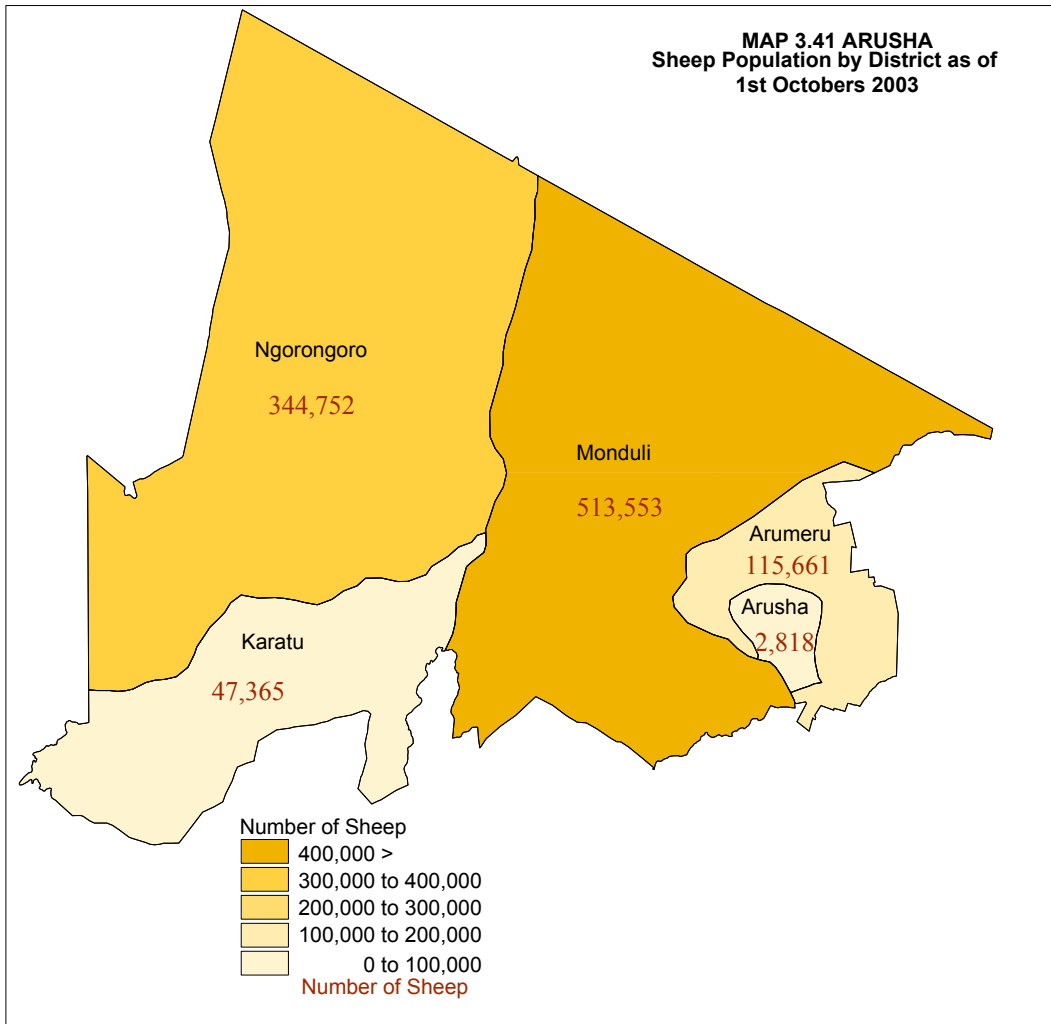


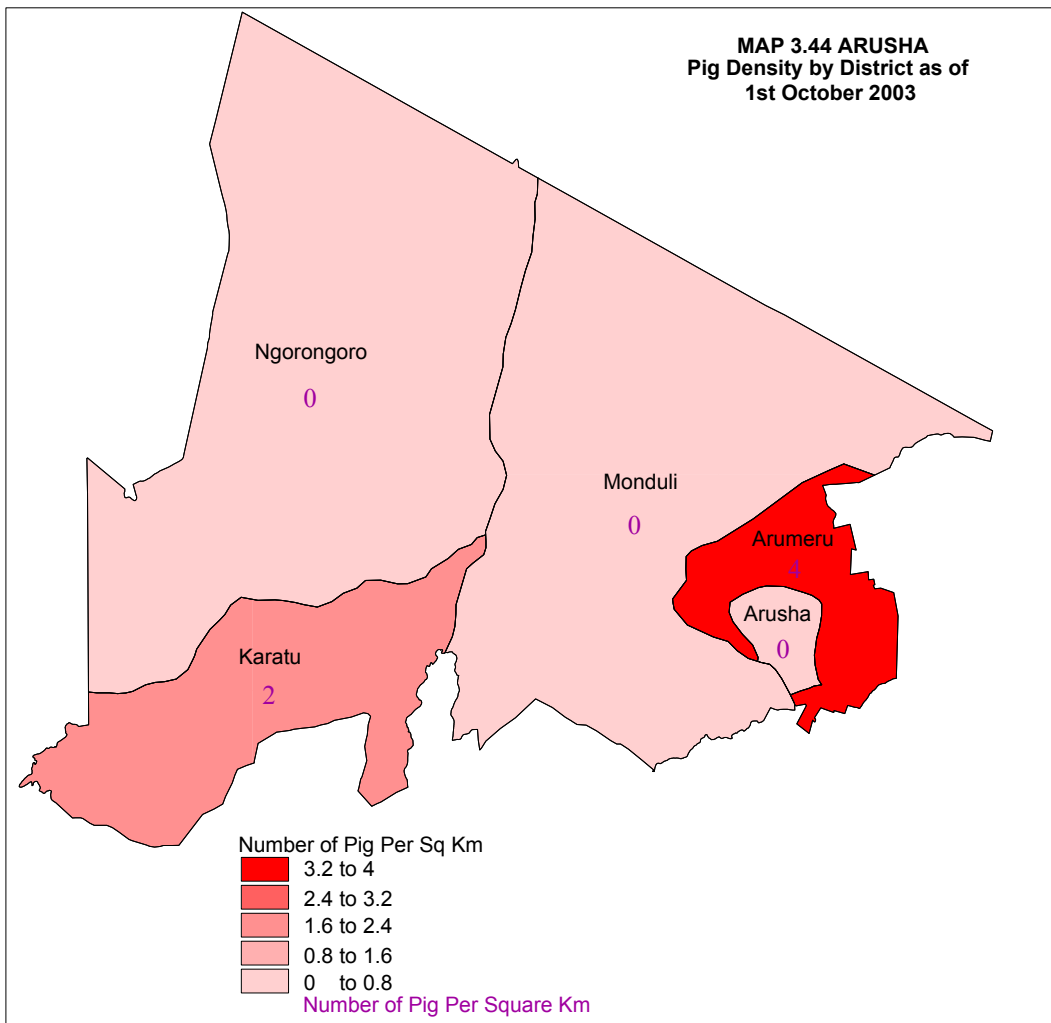
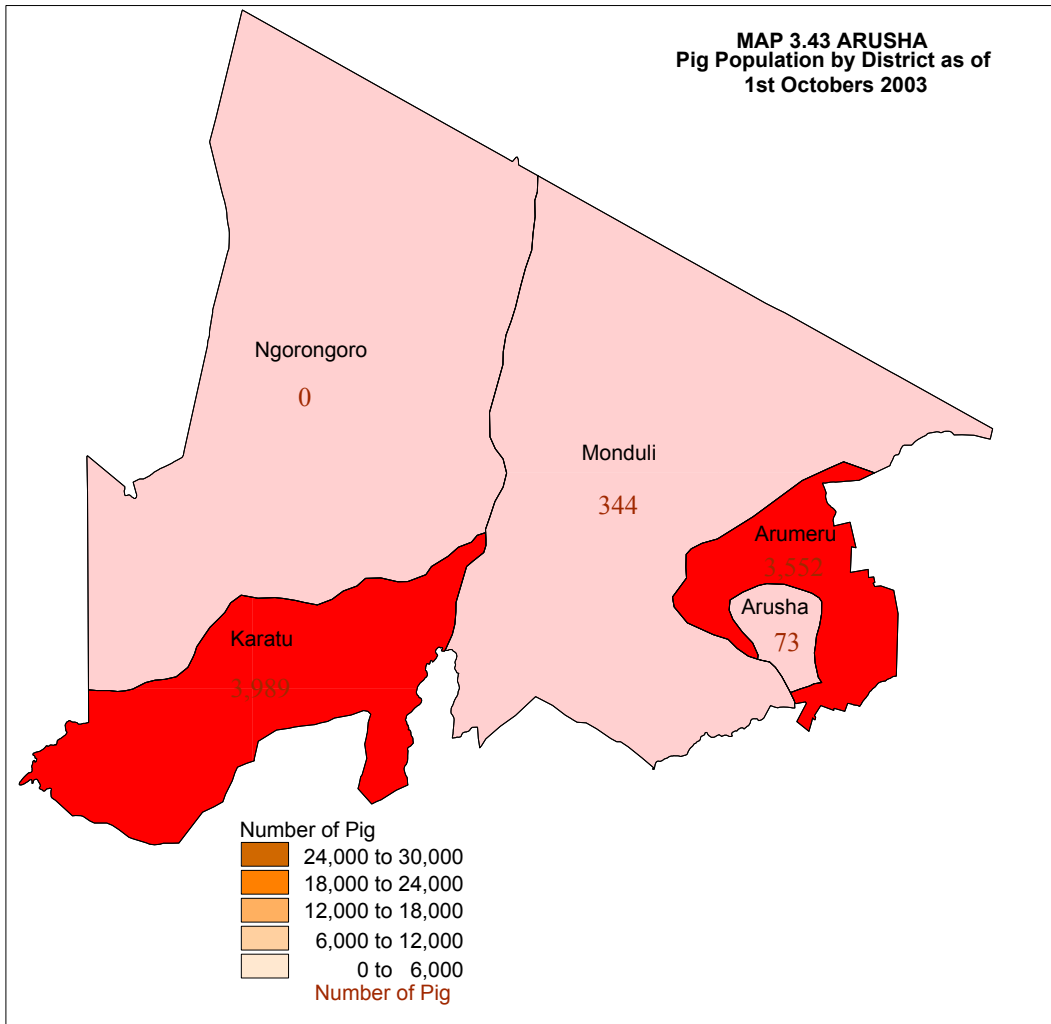
3.12.4. Pig Production

Piggery is the least important livestock keeping activity in the region after cattle, goats and sheep. The region ranks 10 out of 21 Mainland regions and is 0.8 percent of the Mainland total pigs.

The number of pig-rearing agricultural households in Arusha region was 3,154 (2% of the total agricultural households in the region) rearing 7,958 pigs. This gives an average of 3 pigs per pig-rearing household. The district with the largest number of pigs was Karatu with 3,989 pigs (50% of the total pig population in the region) followed by Arumeru (3,552 pigs, 45%), Monduli (344 pigs, 4%) and Arusha (73 pigs, 1%) (Chart 3.131 and Map 3.43). However Arumeru district had the highest density (4 head per km²) (Map 3.44).

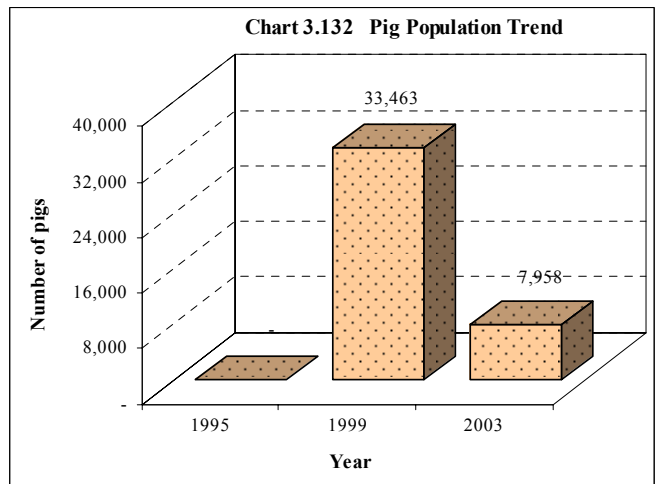






3.12.4.1 Pig Population Trend

The pig population for the eight years period from 1995 to 2003 grew to 7,958. The pig population increased to 33,463 in 1999. The growth rate dropped to -30.1 percent during the following four years from 1999 to 2003 in which pig population decreased from 33,463 to 7,958 (Chart 3.132).



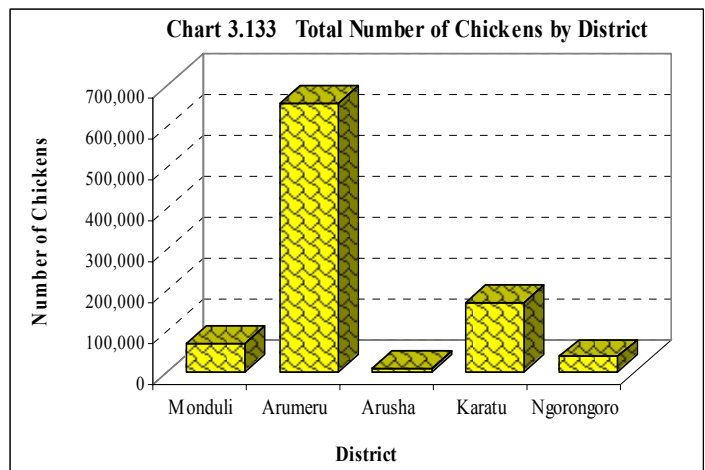
3.12.5 Chicken Production

The poultry sector in Arusha region was dominated by chicken production. The region contributed 2.8 percent to the total chicken population on Tanzania Mainland.

3.12.5.1 Chicken Population

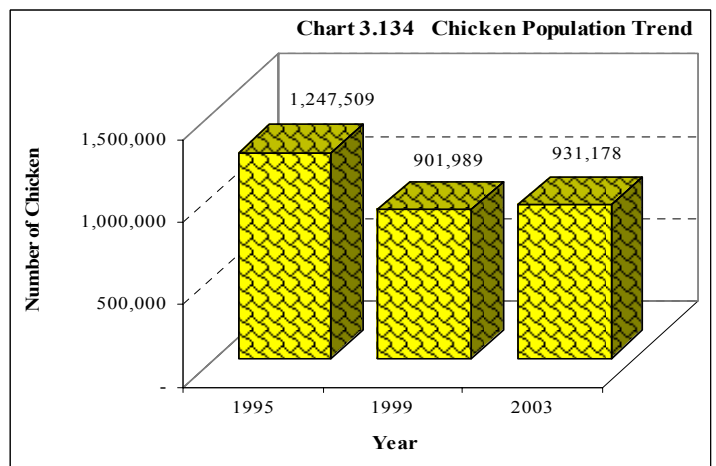
The number of households keeping chicken was 80,777 raising about 931,178 chickens. This gives an average of 12 chickens per chicken-rearing household. In terms of total number of chickens in the country, Arusha region was ranked sixteenth out of the 21 Mainland regions.

The District with largest number of chickens was Arumeru (655,191 chickens, 70% of the total number of chickens in the region) followed by Karatu (167,793, 18%), Monduli (67,095, 7%) and Ngorongoro (35,318 chickens, 4%). Arusha district had the smallest number of chickens (5,781, 1%) (Chart 3.133). However Arumeru district had the highest density (745 head per km²).



3.12.5.2 Chicken Population Trend

The overall annual chicken population growth rate during the eight-year period from 1995 to 2003 was -3.6 percent. The population decreased at a rate of -7.8 percent from 1995 to 1999 after which it increased to 0.8 percent for the four year period from 1999 to 2003 (Chart 3.134).



Ninety seven percent of all chicken in Arusha region were of indigenous breed. The dominance of indigenous breed makes the population trend for the indigenous chicken more-or-less the same as that of the total chickens in the region.

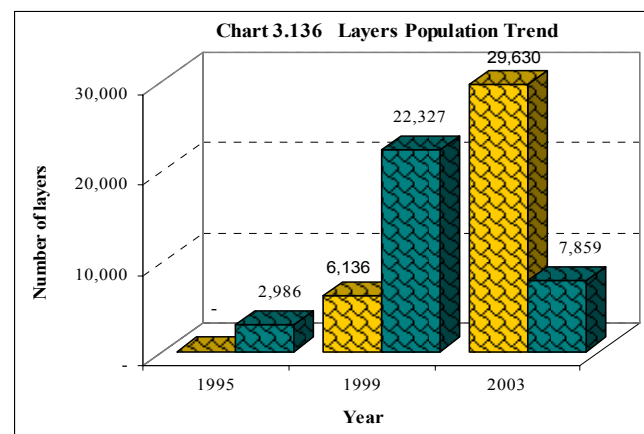
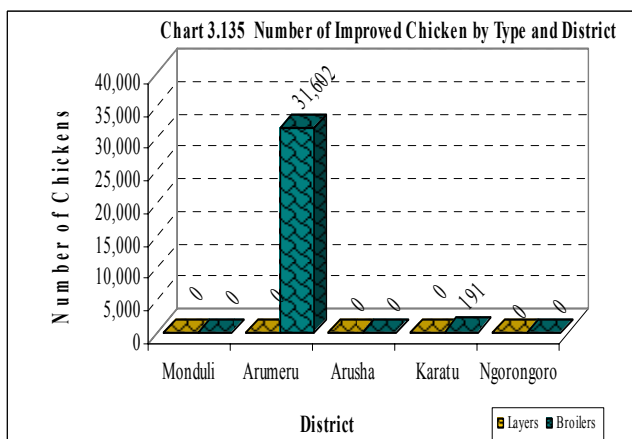
3.12.5.3 Chicken Flock Size

The results indicate that about 83 percent of all chicken-rearing households were keeping 1-19 chickens with an average of 6 chickens per holder. About 16 percent of holders were reported to be keeping the flock size of 20 to 99 chickens with an average of 30 chickens per holder.

Only 1 percent of holders kept the flock sizes of more than 100 chickens at an average of 176 chickens per holder (Table 3.14).

3.12.5.4 Improved Chickens (layers and broilers)

Broiler chicken population in Arusha Region decreased at an annual rate of 13.4 percent for the period of four years from 55,997 in 1999 to 31,793 in 2003. The number of improved chicken was most significant in Arumeru District followed by Karatu District (Chart 3.135).



The overall annual growth rate for broilers during the eight-year period from 1995 to 2003 was 18.3 percent during which the population grew from 8,299 to 31,793. The annual growth rate was higher (61.2%) for the period of four years from 1995 to 1999. The broiler population exhibited a decreasing trend at the rate of -13.2 percent per annum for the period of four years resulting at increase from 55,997 in 1999 to 31,793 2003 (Chart 3.136).

3.12.6. Other Livestock

There were 10,480 ducks, 572 turkeys, 2,715 rabbits and 90,340 donkeys raised by rural agricultural households in Arusha region. Table 3.16 indicates the number of livestock kept in each district. The biggest number of ducks in the region was found in Arumeru District (59% of all ducks in the region), followed by Monduli (26%), and Karatu (15%). There were no ducks production in Arusha and Ngorongoro. Turkeys were reported in Arumeru only (Table 3.14).

Table 3.15 Number of Households and Chickens Raised by Flock Size

Flock Size	Number of Households	%	Number of Chicken	Average Chicken by Households
1-4	27,690	34	77,477	3
5-9	22,808	28	145,948	6
10-19	16,763	21	212,011	13
20-29	7,513	9	172,951	23
30-39	2,600	3	82,860	32
40-49	2,005	2	84,614	42
50-99	813	1	52,362	64
100+	584	1	102,954	124
Total	80,777	100	931,178	11

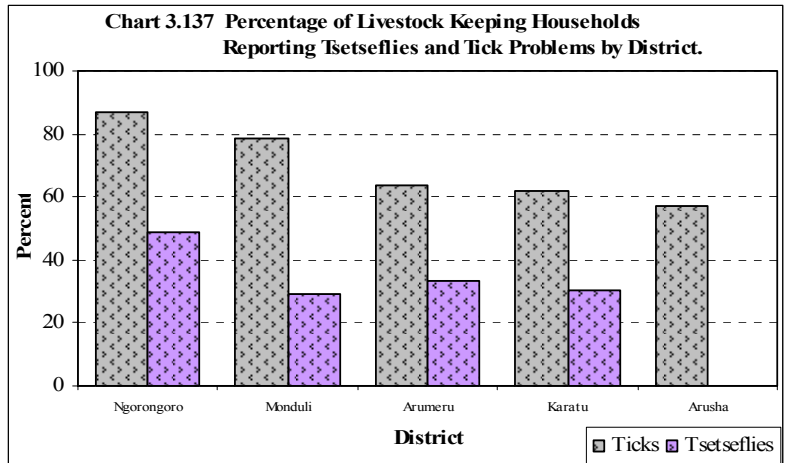
Table 3.16 Number of Other Livestock by Type of Livestock and District

District	Type of Livestock				
	Ducks	Turkeys	Rabbits	Donkeys	Other
Monduli	2,713	0	1,011	49,901	0
Arumeru	6,153	572	1,583	10,100	880
Arusha	0	0	0	38	0
Karatu	1,613	0	0	2,992	0
Ngorongoro	0	0	121	27,309	485
Total	10,480	572	2,715	90,340	1,365

3.12.7 Pest and Parasite Incidence and Control

The results indicate that 70 percent and 34 percent of the total livestock-keeping households reported to have encountered ticks and tsetse fly problems respectively. Chart 3.137 shows that there is a predominance of tick related diseases over tsetse related diseases. Incidences of both problems were highest in Ngorongoro district but lowest in Arusha district (Map 3.45).

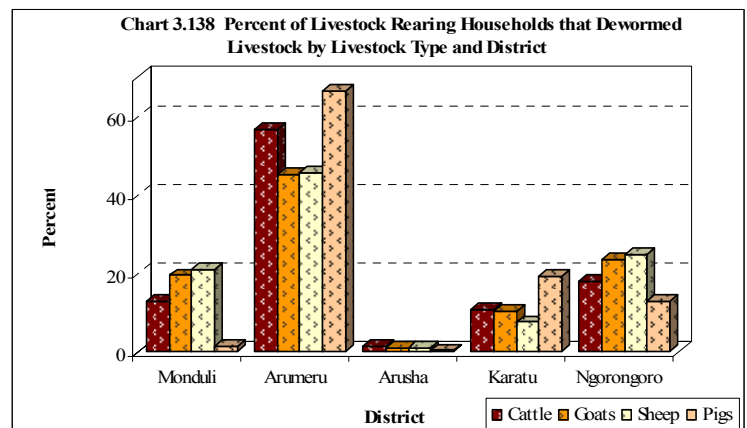
The most practiced method of tick controlling was spraying with 83 percent of all livestock-rearing households in the region using the method. Other methods used were smearing (5%), dipping (3%), and other traditional methods like hand picking (3%). However, 5 percent of livestock-keeping households did not use any method.



The most common method used to control tsetse flies was spraying which was practiced by 53 percent of livestock-rearing households. This was followed by dipping (5%) and trapping (2%). However, 41 percent of the livestock rearing households did not use any of the three aforementioned methods.

3.12.7.1 Deworming

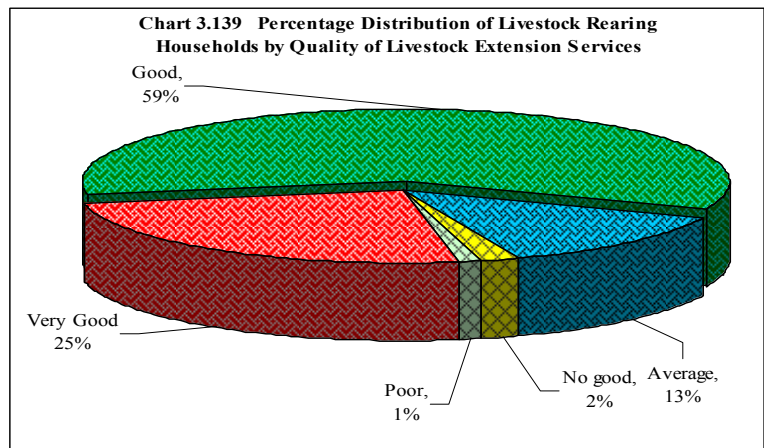
Livestock rearing households that dewormed their animals were 88,023 (71% of the total livestock rearing households in the region). The percentage of the households that dewormed cattle was 55 percent, goats (50%), sheep (37%) and pigs (5%) (Chart 3.138).



3.12.8. Access to Livestock Services

3.12.8.1 Access to Livestock Extension Services

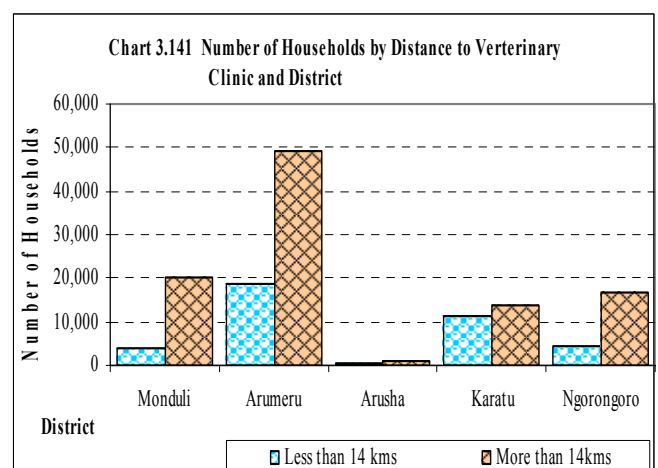
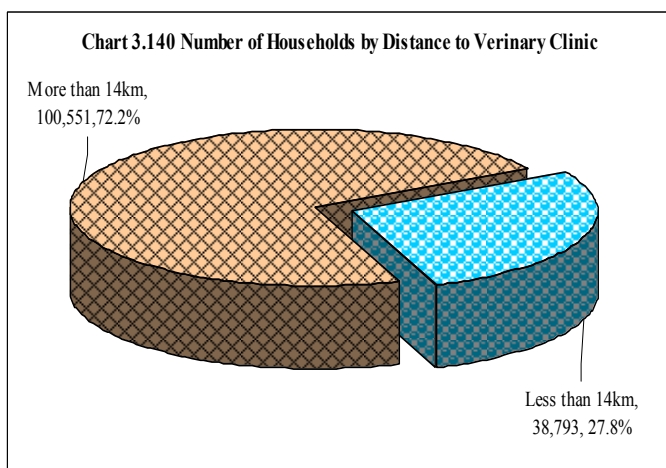
The total number of households that received livestock advice was 35,670 representing 29 percent of the total livestock-rearing households and 23 percent of the agricultural households in the region. The main livestock extension agent was the government which provided service to about 24.6 percent of all households receiving livestock extension services. The rest of the households got services from NGOs/development projects (19.5%), co-operatives (18.6%), large-scale farmers (18.6%) and others (18.6%).



About 59 percent of livestock rearing households described the general quality of livestock extension services as being good, 25 percent said they were very good, 13 percent said they were average. However, 2 percent of the livestock rearing households said the quality was not good whilst 1 percent described them as poor (Chart 3.139).

3.12.8.2 Access to Veterinary Clinic

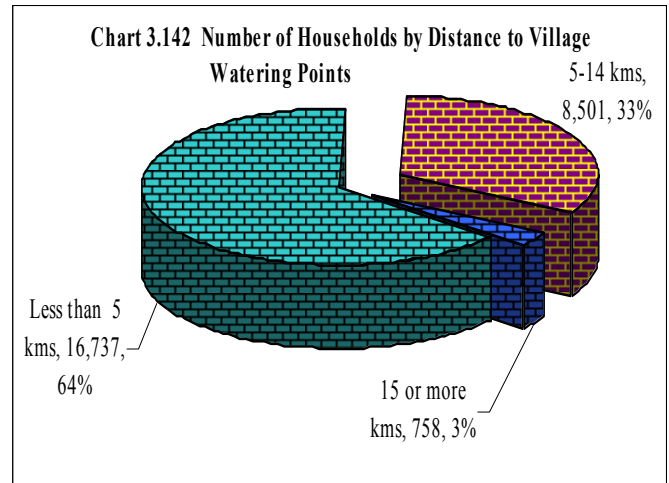
Many veterinary clinics were located very far from livestock rearing households. About 72.2 percent of the livestock rearing households accessed the services, at a distance of more than 14 kms. Only 27.8 percent of them accessed the services within 14 kms from their dwellings (Chart 3.140). The most affected district was Monduli district with around 84 percent livestock rearing households accessing the services at a distance of more than 14 kms. Karatu District was the least affected because about 45 percent of the households could access the service within a distance of 14 kilometres. (Chart 3.141).



3.12.8.3 Access to Village Watering Points/dam

The number of livestock rearing households residing less than 5 kms from the nearest watering point was 16,737 (64% of livestock rearing households in Arusha region) whilst 8,501 households (33%) resided between 5 and 14 kms. However, 758 households (3%) had to travel a distance of 15 or more kms to f the nearest watering point (Chart 3.142).

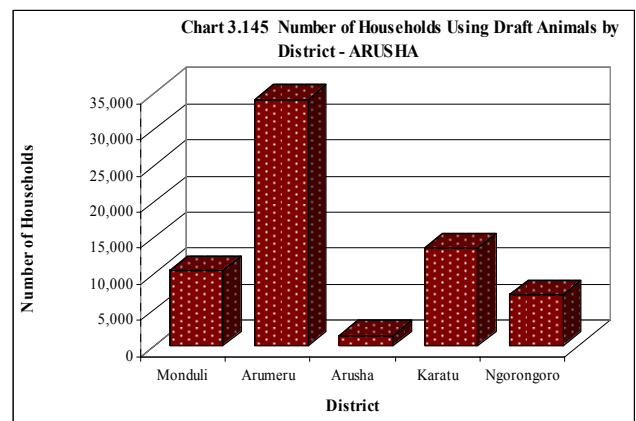
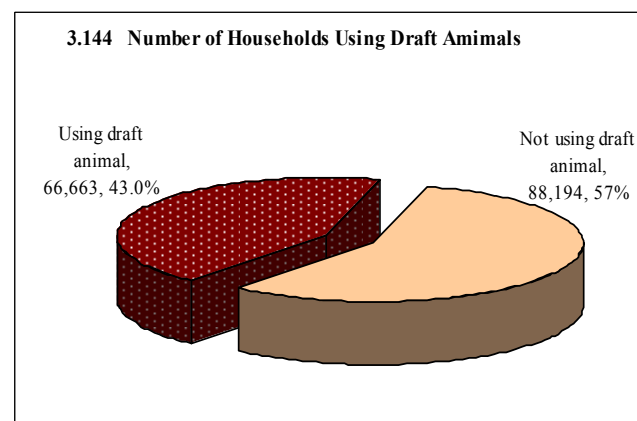
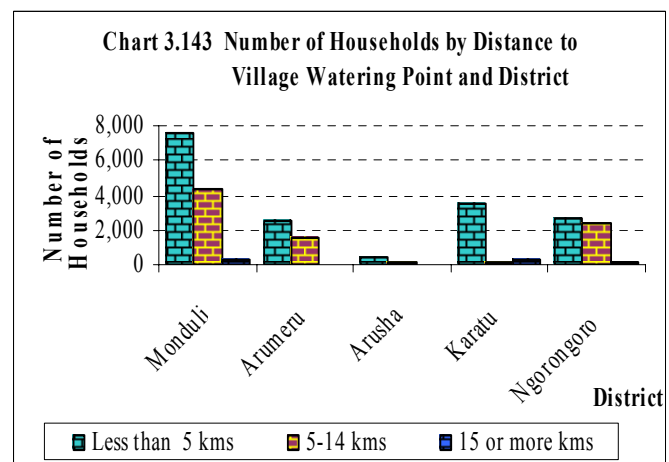
Karatu district had the best livestock water supply with the majority of livestock rearing households residing within 5 kms from the nearest watering point. This is followed by Arusha, Monduli and Arumeru districts. In Ngorongoro district about 50 percent of the livestock rearing households had to travel a distance of more than five kilometers to the nearest watering point (Chart 3.143).



3.12.9. Animal Contribution to Crop Production

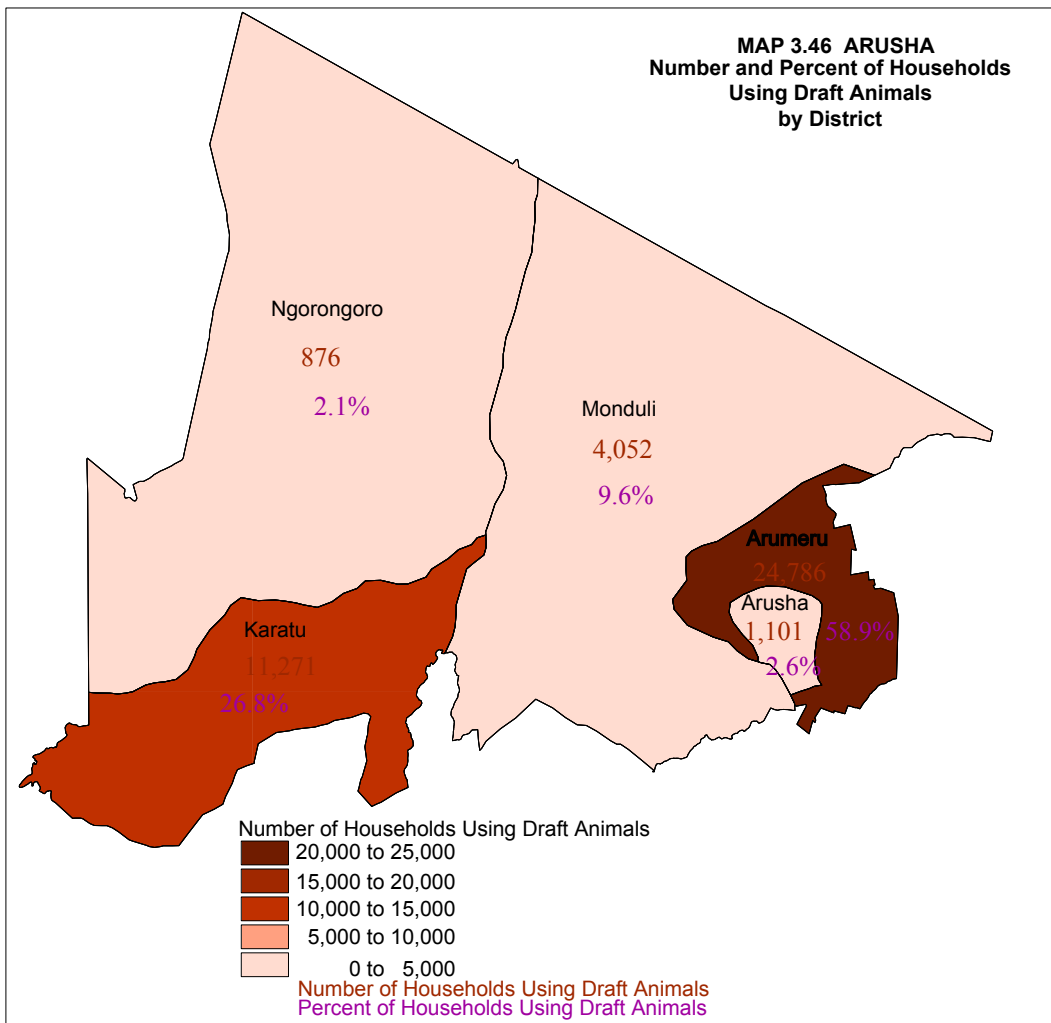
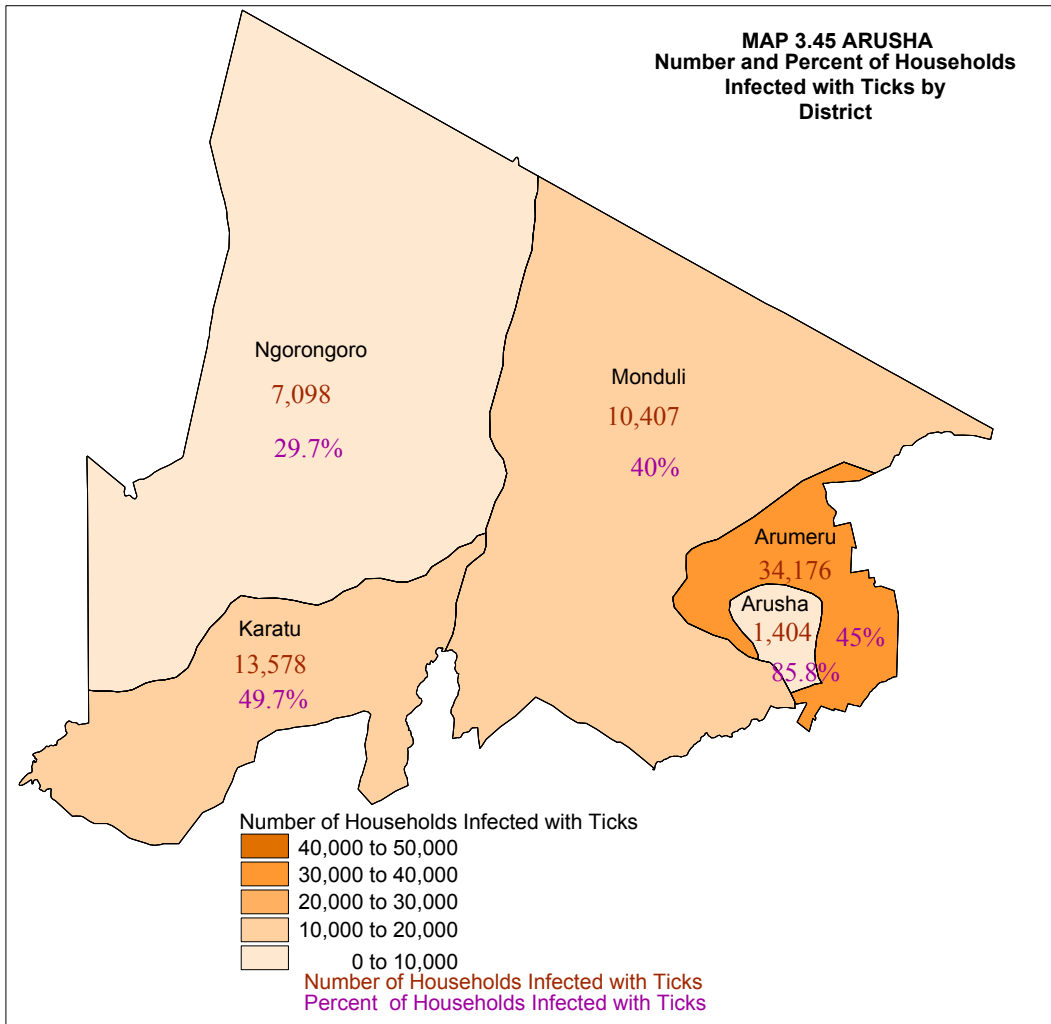
3.12.9.1 Use of Draft Power

Use of draft animals to cultivate land in Arusha region is widely used with 66,663 households (43% of the total households in the region) using them (Chart 3.144).



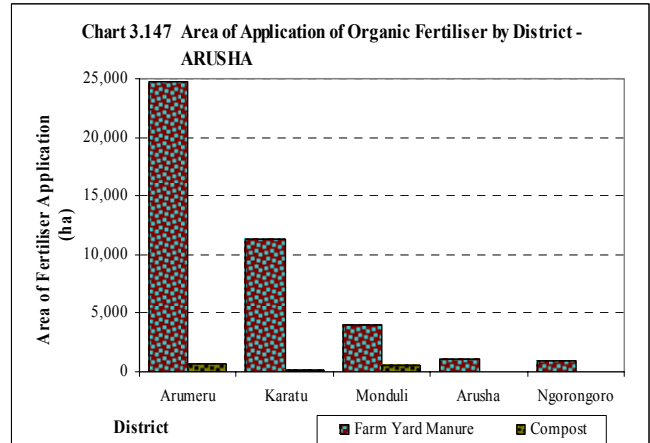
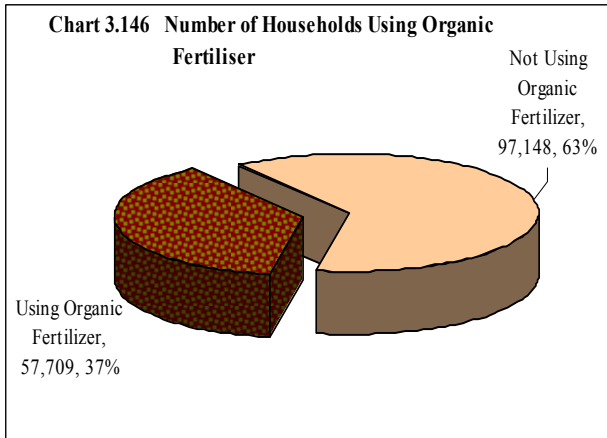
The number of households that used draft animals in Arumeru district was 34,176 representing 51 percent of the households using draft animals in the region followed by Karatu 13578 (20%), Monduli 10,407 (16%), Ngorongoro 7098 (11%) and Arusha 1404 (2%) (Chart 3.145 and Map 3.48).

The region had 211,812 oxen (97,168 oxen in Arumeru, 50,371 in Karatu, 37,877 in Monduli, 21,996 in Ngorongoro and 4,509 in Arusha) that were used to cultivate 74,829 hectares of land. This represents only 5 percent of the total oxen found on the Mainland. The largest area cultivated using oxen was found in Arumeru district (36,563 ha, 48.9% of the total area cultivated using oxen).



3.12.9.2 Use of Farm Yard Manure

The number of Households using organic fertilizer in Arusha region was 57,709 (37% of total crop growing households in the region) (Chart 3.146). The total area applied with organic fertilizer was 42,086 ha of which 39,374 hectares (94% of the total area applied with organic fertiliser or 28% of the area planted with annual crops and vegetables in Arusha region during the long rainy season) was applied with farm yard manure (Map 3.47).



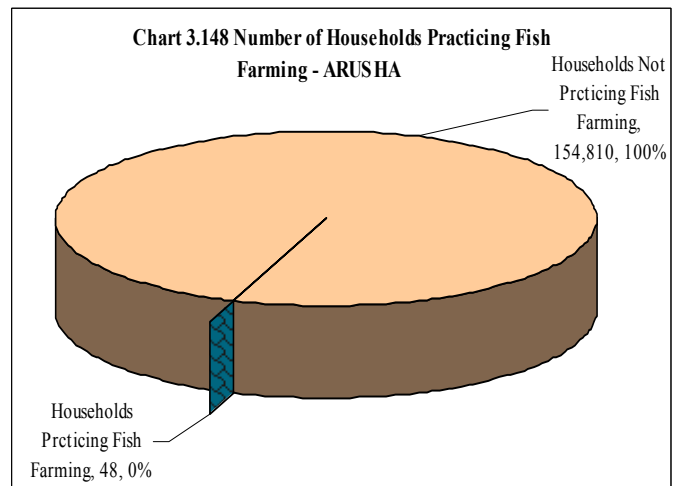
3.12.9.4 Use of Compost

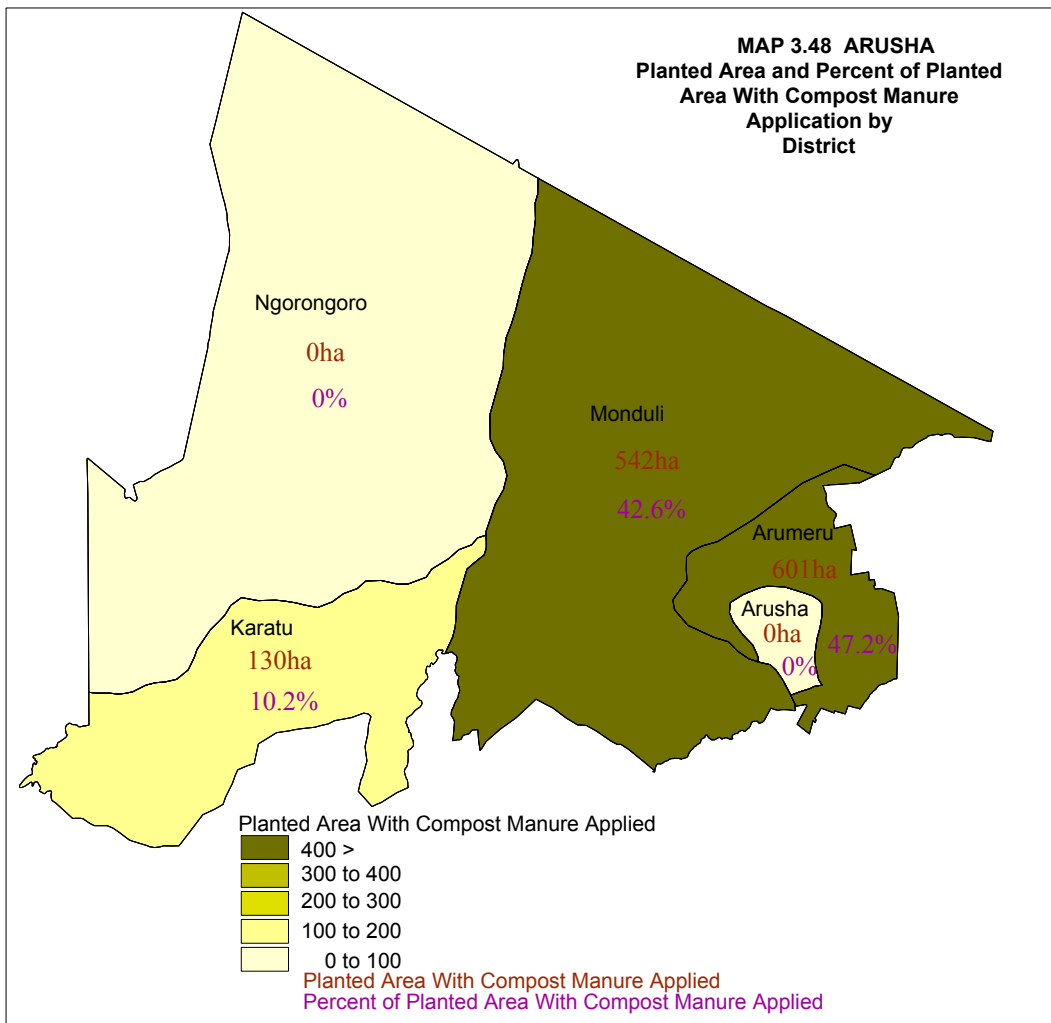
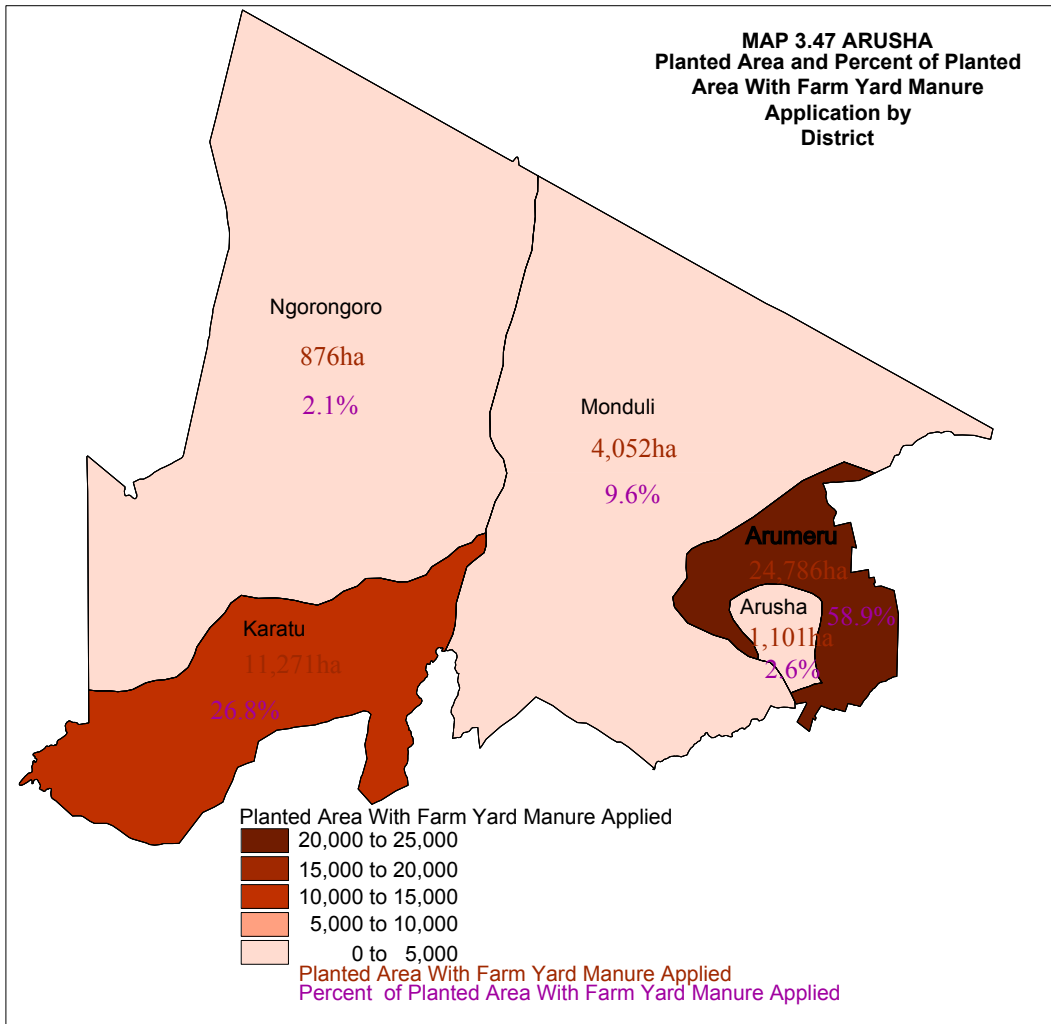
Only 1,273 ha (3% of the area of organic fertilizer application) was applied with compost. The largest area applied with farm yard manure was found in Arumeru district with 24,786 hectares (59% of the total area applied with farm yard manure) followed by Karatu (11,271 ha, 27%), Monduli (4.052 ha, 10%), Arusha (1,101 ha, 3%) and Ngorongoro 876 (2%) (Chart 3.147 and Map 3.48).

3.12.10 Fish Farming

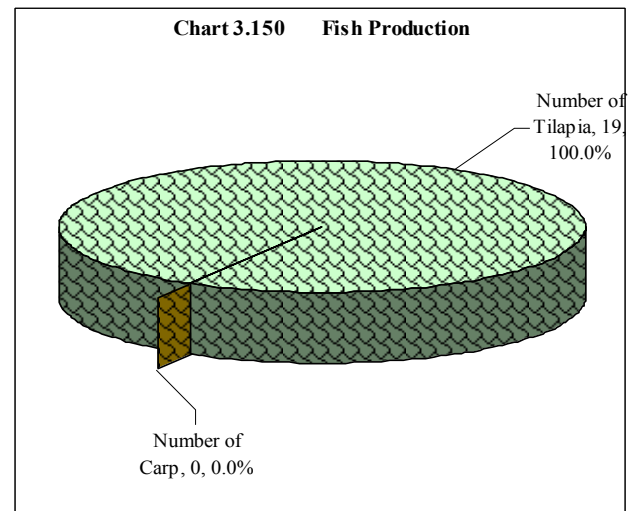
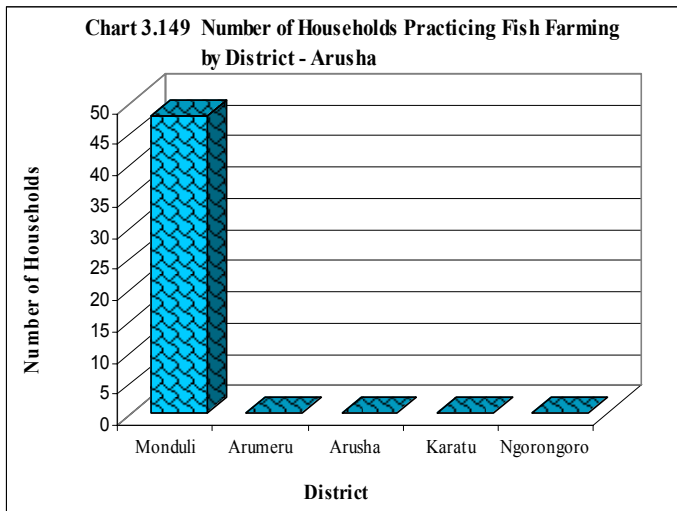
The number of households involved in fish farming in Arusha region was 48, representing 0.03 percent of the total agricultural households in the region (Chart 3.148).

Monduli was the only district with 48 households (0.2% of agricultural households) involved in fish farming. Fish farming was not practiced in the rest of the districts (Chart 3.149).





The main source of fingerings was the non governmental organizations and/or projects which provided fingering to 100 percent of the fish farming households.



All fish farming households in the region used the dug-out-pond system and the main fish specie planted is Tilapia. The number of fish harvested in Arusha region was 19,082, of which, all (100%) were tilapia (Chart 3.150). About 100 percent of the fish farming households sold their fish. All fish were sold at the farm.

3.13. POVERTY INDICATORS

The agricultural census collected data on poverty for the purpose of providing a base for tracking progress in poverty reduction strategies undertaken by the government.

3.13.1 Access to Infrastructure and Other Services

The results indicate that among the evaluated services, regional capital was a service located very far from most of the household's dwellings than any other service. It was located at an average distance of 111.9 kilometers from the agricultural household's dwellings. Other services and their respective average distances in kilometers from the dwellings were all weather road (7.5), tarmac road (49.2), hospital (37), tertiary market (62.6), secondary market (16.6), secondary school (18.5), primary market (10.6), health clinic (7.6), primary school (3.2) and feeder road (1.7) (Table 3.15).

District	Mean Distance to										
	Secondary Schools	Primary Schools	All weather roads	Feeder Roads	Hospitals	Health Clinics	Regional Capital	Primary Markets	Secondary Market	Tertiary Market	Tarmac Roads
Monduli	41.6	4.7	8.7	4.0	85	12.2	108.2	12.8	20.1	77.9	39.4
Arumeru	5.5	1.9	2.8	0.4	19	3.7	28.2	5.5	9.3	22.4	9.7
Arusha	4.3	2.9	2.9	1.7	14	6.7	17.2	13.2	13.8	15.2	14.9
Karatu	11.4	3.1	3.6	2.9	25	5.6	177.0	10.7	12.8	56.1	28.1
Ngorongoro	43.5	6.0	26.4	2.2	58	17.5	314.6	23.9	40.4	184.3	212.3
Total	18.5	3.2	7.5	1.7	37	7.6	111.9	10.6	16.6	62.6	49.2

Only 3 percent of the agricultural households reported the available infrastructures and services as 'very good' whereas 29 percent reported them to be average. Twenty four percent of the agricultural households said the infrastructure and services were poor and 20 percent said they were 'no good'.

3.13.2 Type of Toilets

A large number of rural agricultural households use traditional pit latrines (98,470 households, 63.6% of all rural agricultural households) 4,104 households (2.7%) use improved pit latrine and 1,549 households (1.0%) use flush toilets. The remaining 503 household (0.3%) use other toilets facilities. However, 50,232 households (32.4%) in the region had no toilet facilities (Chart 3.151).

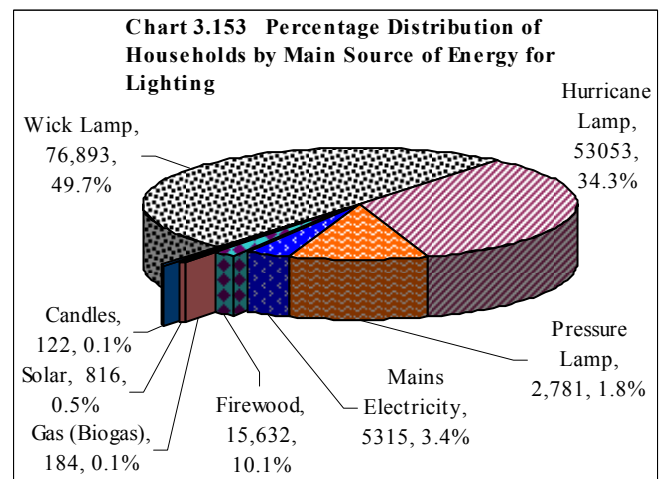
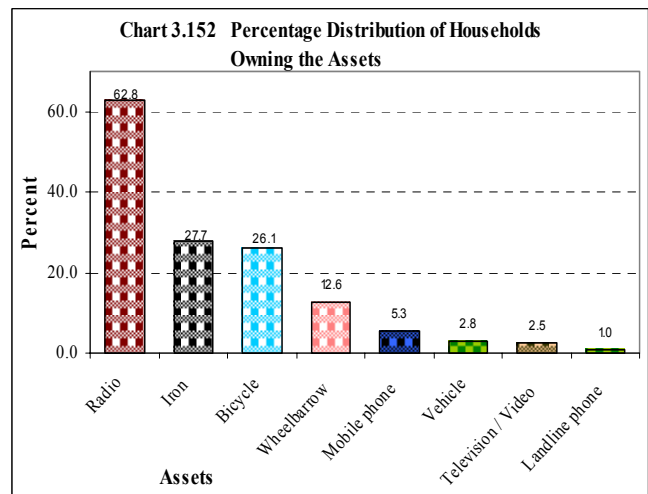
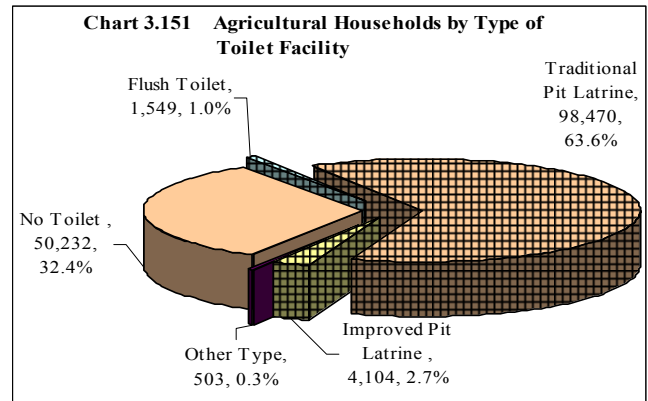
The distribution of the households without toilets within the region indicates that 40.0 percent of them were found in Monduli District and 0.1 percent were from Arusha. The percentages of households without toilets in other districts were as follows Ngorongoro (39.7%), Arumeru (15.3%) and Karatu (4.9%) (2.5%) Map 3.49).

3.13.3 Household’s Assets

Radios are owned by most rural agricultural households in Arusha region with 97,256 households (62.8% of the agriculture households in the region) owning the asset. Followed by iron 42,908 households, 27.7%), bicycle (40,475 households, 26.1%), wheelbarrow (19,495 households, 12.6%), mobile phone (8,192 households, 5.3%), vehicle (4,271 households, 2.8%), television/video (3,947 households, 2.5%) and landline phone (1,541 households, 1.0%) (Chart 3.152).

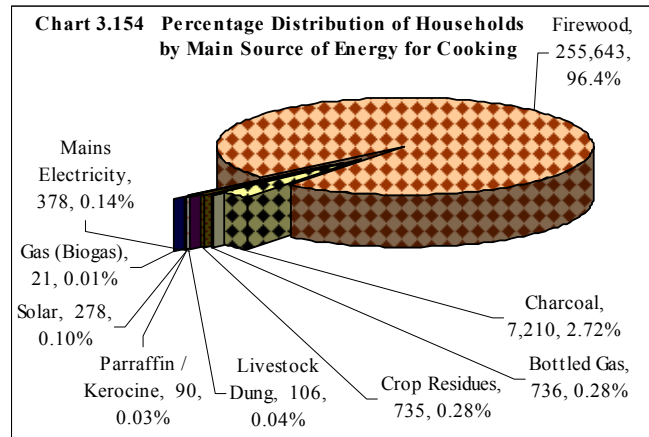
3.13.4 Sources of Lighting Energy

Wick lamp is the most common source of lighting energy in the region. with 49.7 percent of the total rural households using this source of energy followed by hurricane lamp (34.3%), firewood (10.1%), mains electricity (3.4%), pressure lamp (1.8%), , solar (0.5%), gas or biogas (0.1%) and candle (0.1%) (Chart 3.153).



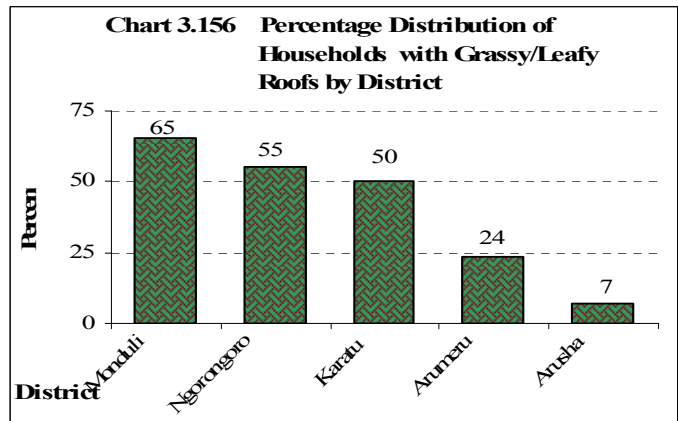
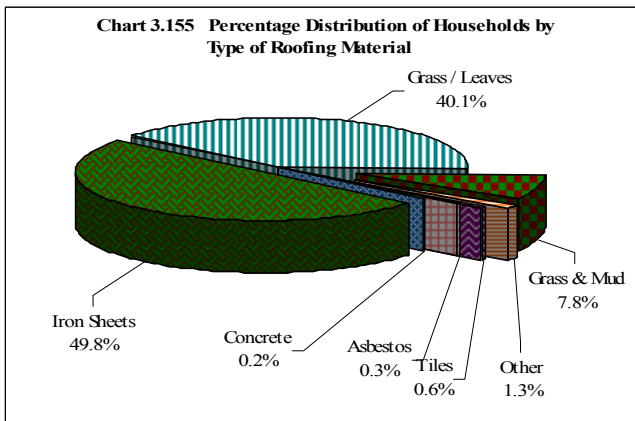
3.13.5 Sources of Energy for Cooking

The most prevalent source of energy for cooking was firewood, which was used by 95.19 percent of all rural agricultural households in Arusha region. This is followed by charcoal (1.91%). The rest of energy sources accounted for 2.9 percent. These were paraffin/kerosene (0.87%), livestock dung (0.76%), crop residues (0.55%), mains electricity (0.37%), bottled gas (0.16%), solar (0.14%), and gas/biogas (0.05%) (Chart 3.154).



3.13.6 Roofing Materials

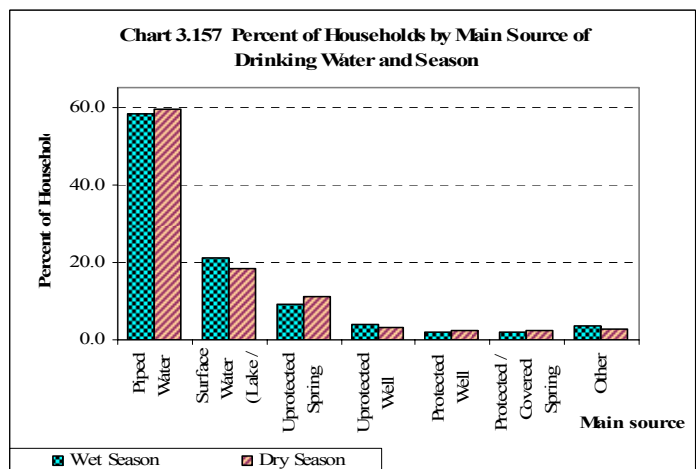
The most common material used for roofing of the main dwelling was iron sheet and it was used by 49.8 percent of the rural agricultural households. This was closely followed by grass/leaves (40.1%), grass/mud (7.8%), tiles (0.6%), asbestos (0.3%), concrete (0.2%) and others (1.3%) (Chart 3.155).

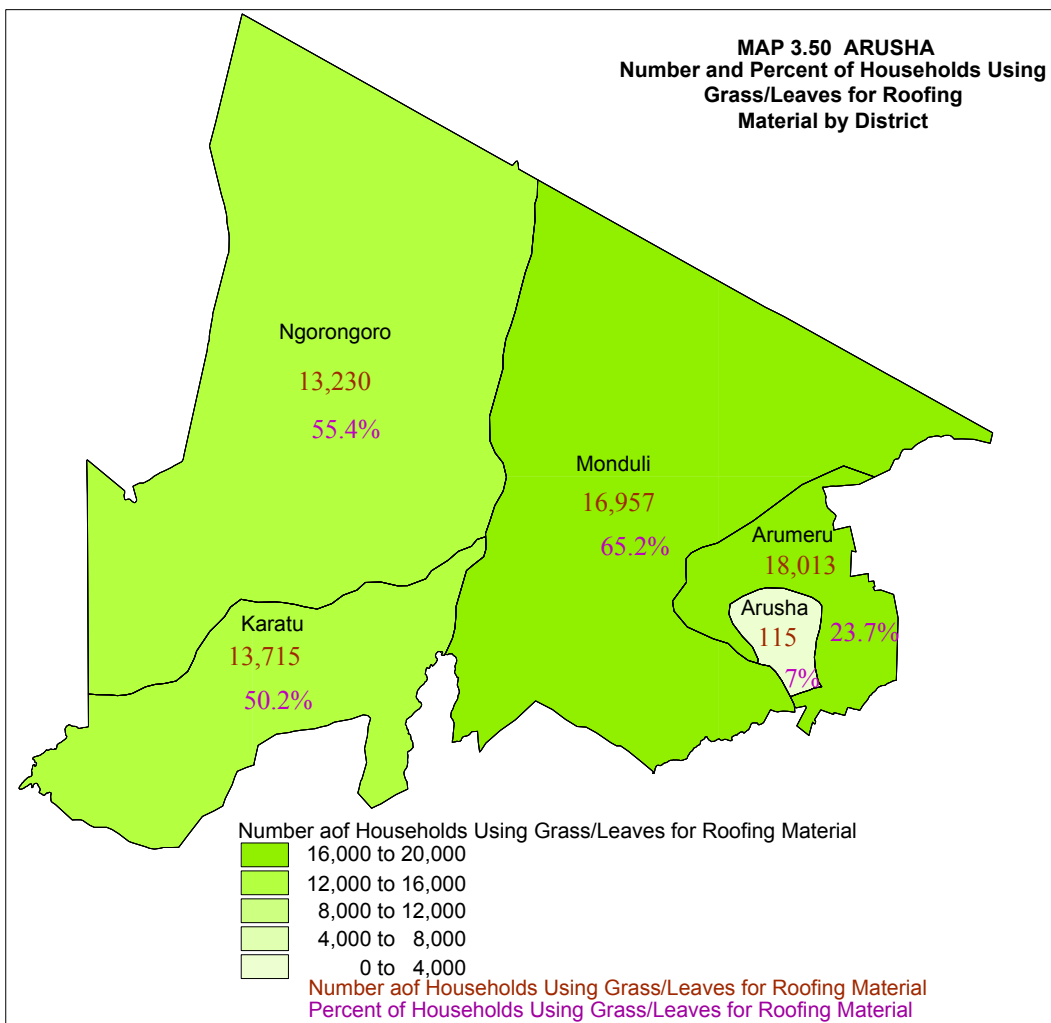
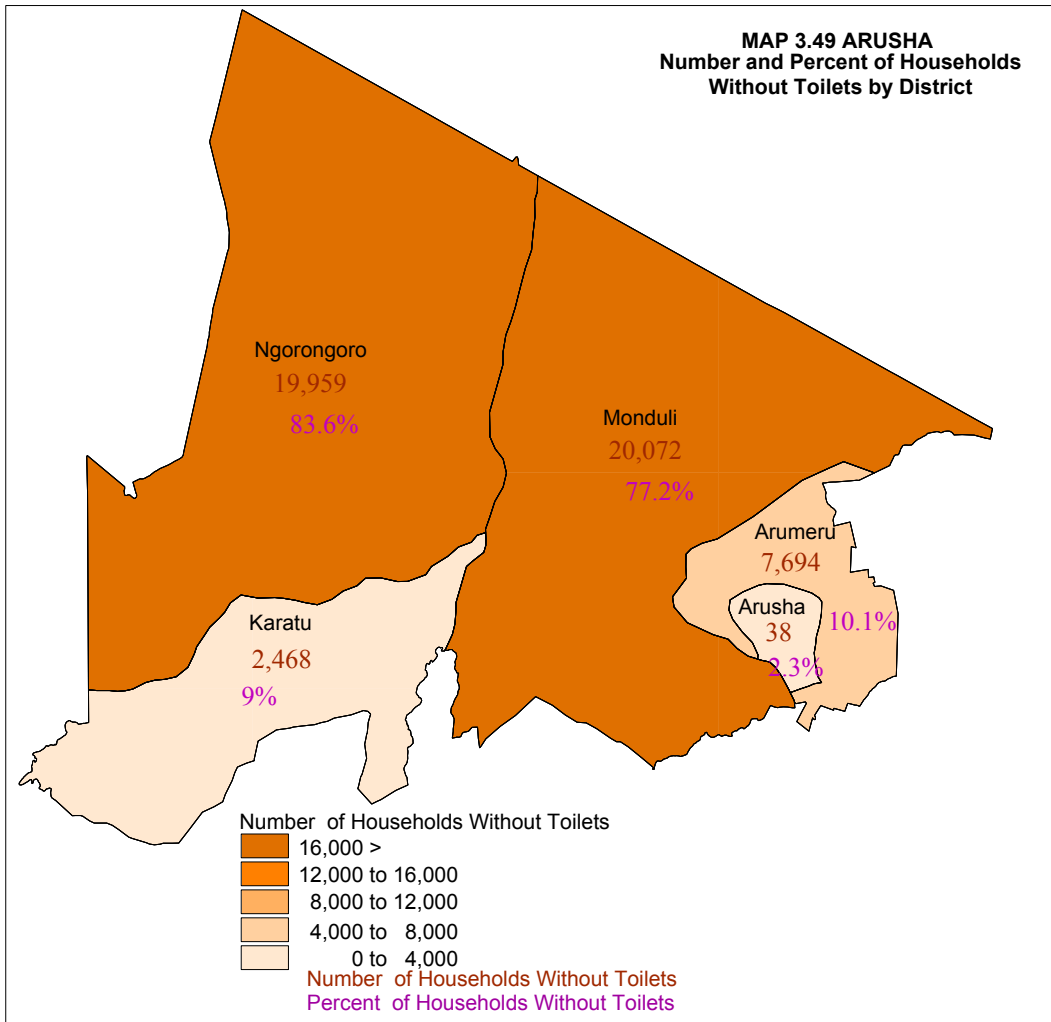


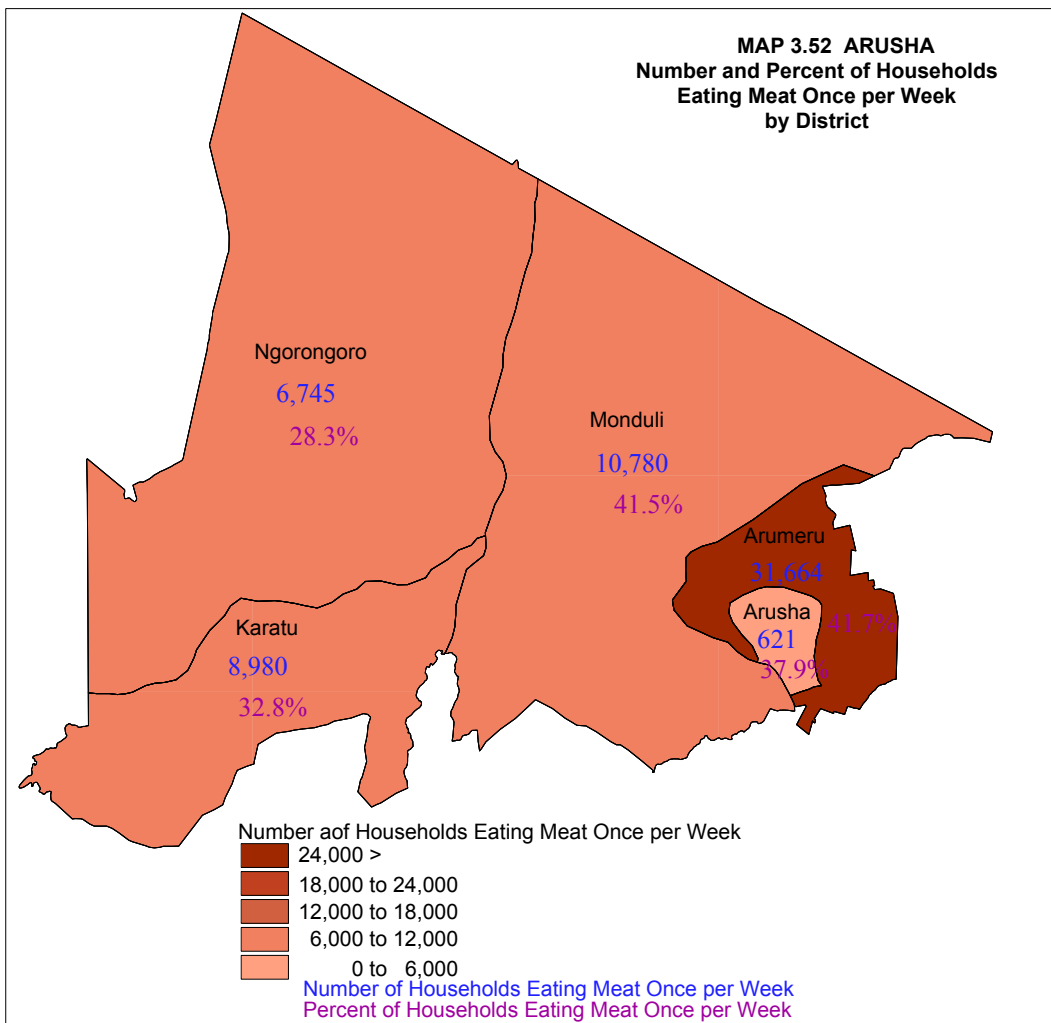
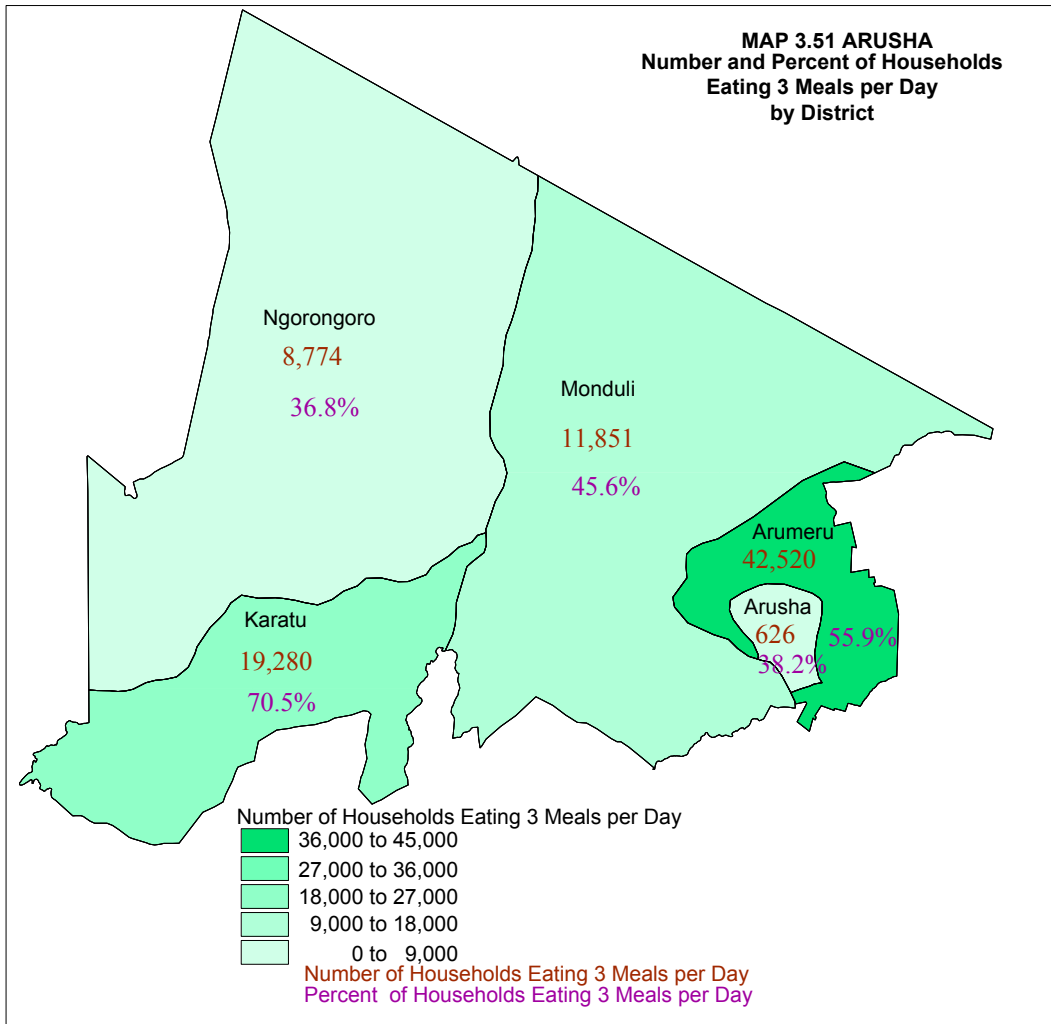
Monduli district had the highest percentage of households with grass/leaves roofing material (65%) and was followed by Ngorongoro district (55%), Karatu (50%), Arumeru (24%) and Arusha (7%) (Chart 3.156 and Map 3.50).

3.13.7 Access to Drinking Water

The main source of drinking water for rural agricultural households in Arusha region was piped water (59 percent of households use piped water during the dry season and 58 percent of the households during the wet seasons. This is followed by surface water (21% during the wet season and 18% in the dry season), unprotected spring (9% of households during the wet season and 11% in the dry season), unprotected well (4% of households in the wet season and 3% during dry season), protected wells with 2 percent of households using the source for both seasons. Covered spring was used as a main source by 2 percent of the households in both seasons Chart 3.157).







3.13.8.3 Fish Consumption Frequencies

The number of agricultural households that consumed fish during the week preceding the census was 62,995 (41% of the total agricultural households in Arusha region) with 39,305 households (25.4 % of those who consumed fish) consuming fish once during the respective week. This was followed by those who had fish twice times (10.2%). In general, the percentage of households that consumed fish twice or more during the week in Arusha region was 23,690 (15.3% of the agricultural households that ate fish in the region during the respective period). About 59.3 percent of the agricultural households in Arusha region did not eat fish during the week preceding the census (Chart 3.160 and Map 3.53).

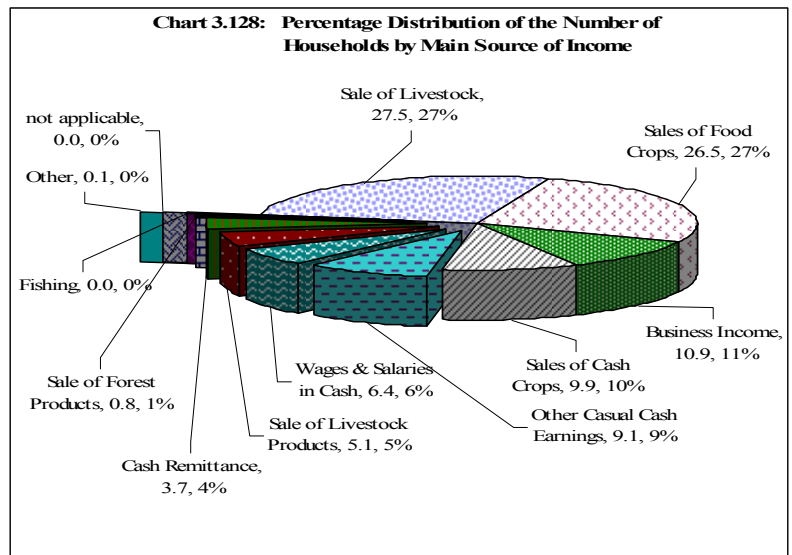
3.13.9 Food Security

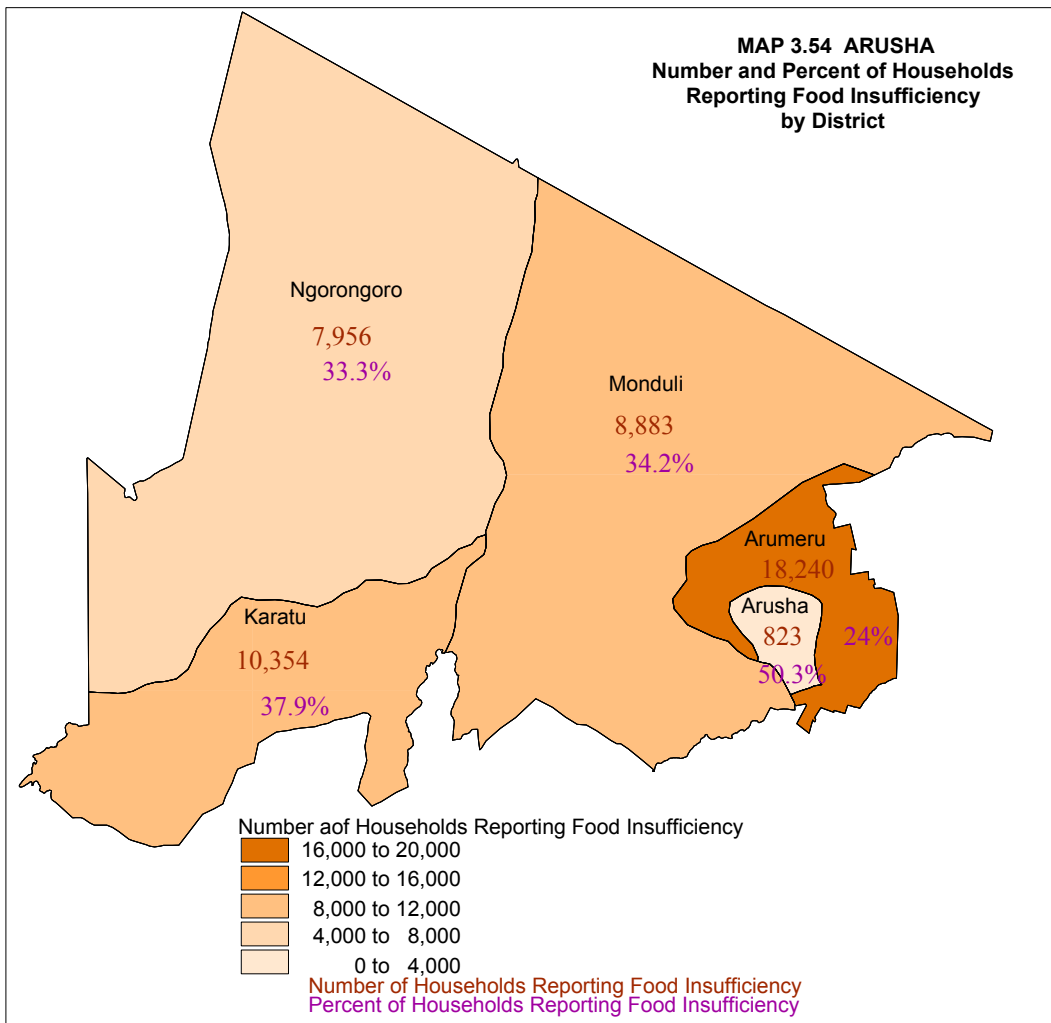
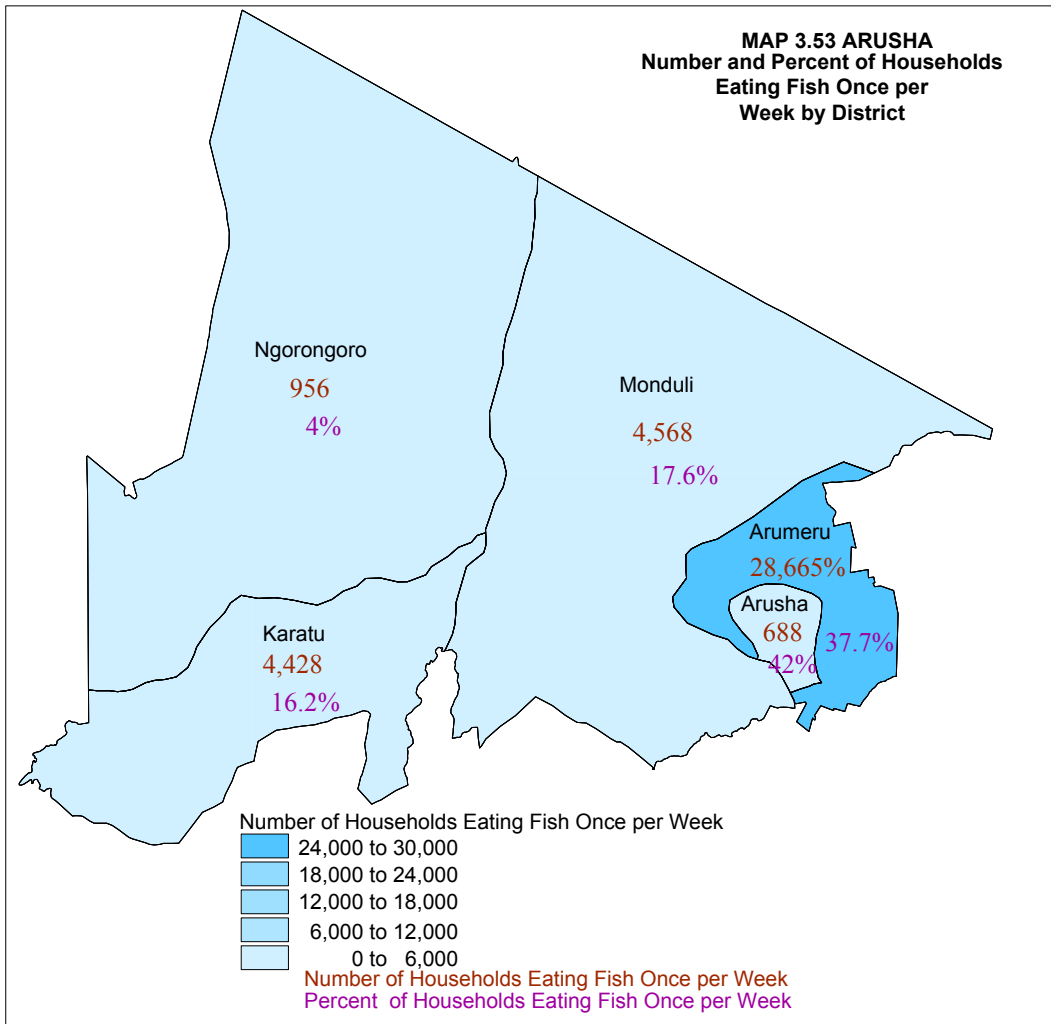
In Arusha region, 57,717 households (37.3% of the total agricultural households in the region) said they did not experienced problems in satisfying the household food requirement. However 10,049 (6.5%) said they sometimes experience problems, 17.7 often experienced problems and 8.7 percent always had problems in satisfying the household food requirement. About 29.9 percent of the agricultural households said they rarely experience any food sufficiency problems (Map 3.54).

3.13.10 Main Sources of Cash Income

The main cash income of the households in Arusha region was from sale of Livestock (27.5 percent of smallholder households), followed by sale of food crops (26.59%), businesses (10.9%), sales of cash crops (9.9%) and other casual cash earnings (9.1%).

Only 6.4% of smallholder households reported the wages and salaries in cash as their main source of income, followed by sales of livestock products (5.1%), cash remittance (3.7%), sale of forest products (0.8%) and others (0.1%) (Chart 3.161).





4 ARUSHA PROFILES

This section presents the status of crops and livestock production, access to natural resources and services, demography and poverty for both the region as a whole and for each district.

4.1 Region Profile

The region profile describes the status of the Agriculture sector in the region and compares it with other regions in the country.

4.2 District Profiles

The following district profiles highlights the characteristics of each district and compares them in relation to Population, Main crops and livestock, production and productivity, access to services and resources and levels of poverty.

4.2.1 Monduli

Monduli district has the second largest number of households in the region and it has moderate percent of households involved in smallholder agriculture in the region. Most smallholders are involved in crop farming only, followed by crop and livestock production. It has a small number of livestock only households and few pastoralists were found in the district.

The most important livelihood activity for smallholder households in Monduli district is Annual Crop Farming, followed livestock keeping or herding and Off farm Income. However, the district has the fourth highest percent of households with no off-farm activities and the lowest percent of households with more than one member with off-farm income. Compared to other districts in the region, Monduli has a third high percent of female headed households (20%) and it has one of the lowest average age of the household head. With an average household size of 5.6 members per household which is higher than the regional average. Monduli has a comparatively high literacy rate among smallholder households and this is reflected by the concomitant relatively high level of school attendance in the region.. The literacy rate for the heads of household is also high than most of districts in the region.

It has the largest utilized land area per household (2.7ha) and the allocated area is fully utilised indicating a high level of land pressure. The total planted area is greater than in other districts in the region due to the presence of good wet and dry seasons, however it has the second largest planted area per household (1.4ha) attributed to the high number of smallholders in the district.

The district is the second important for maize production in the region with a planted area of over 22,289 ha, however the planted area per household is the second lowest in the region. Paddy production is not important with a planted area of only 160 hectares and the production of sorghum is very small. Monduli is one the only two districts in the region that produces wheat (317ha). Cassava production is very low accounting for 3 percent of the quantity harvested in the region. The district has a lowest planted area of Irish potatoes (14 ha) and it is one of the three districts in the region that grows this crop. The production of beans in Monduli is the second highest in the region with a planted area of 12,851ha. Oil seed crops are not important in Monduli and only groundnuts were grown in the district. Vegetable production is not important in the district. Only onions are produced in the district (27ha). It accounts for only one percent of the onion production in the region.

Compared to other districts in the region, Monduli has a moderate planted area with permanent crops which is dominated by banana (798 ha), pigeon peas (137 ha) and coffee (124 ha). Other permanent crops are either not grown or are grown in very small quantities.

As with other districts in the region, most land clearing and preparation is done by hand, however slightly more land preparation is done by oxen compared to most other districts.

The use of inputs in the region is very small, however district differences exist. Monduli has the third largest planted area with improved seed in Arusha region and this is due to the higher planted area of vegetables. The district has the third largest planted area with fertilizers (Farm yard manure and compost), however most of this is farm yard manure. Compared to other districts in the region, Monduli district has a highest level of insecticide use. The use of fungicides, although small, was moderate to high compared to other districts. Virtually small amount of herbicide was used. It has the third largest area with irrigation compared to other districts with 1,102 ha of irrigated land. The most common source of water for irrigation is from rivers using gravity. Flood was the only means of irrigation water application.

The most common method of crop storage is in locally made traditional cribs, however the proportion of households storing crops in the district is the second lowest compared to other districts in the region. The district has the third largest number of households selling crops, however for those who did not sell, the main reason for not selling is insufficient production. The lowest percent of households processing crops in Arusha region is found in Monduli district and is almost all done by neighbour machine. The district also has a second largest percent of households selling processed crops to local markets/trade stores than other districts and no sales are to traders on farm. Although very small, access to credit in the district is to men only and the main sources are private individuals and others.

A comparatively Monduli has the second largest number of households receiving extension services and most of this is from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming is not very important in Monduli (with 1,636 planted trees) and is mostly *Gravellia* with some *acacia* spp and eucalyptus. One of the lowest proportion of households with erosion control and water harvesting structures is found in Monduli district and is mostly erosion control bands, however it also has the third highest number of water harvesting bands, drainage ditches and fourth terraces.

The district has the second largest number of cattle in the region and they are almost all indigenous. Goat production is moderate compared to other districts, however it has the largest population of sheep in the region. It has the one of the smallest number of pigs in the region and has a third lowest number of chickens. There are no layers in the districts. Moderate number of ducks, rabbits and highest number of donkeys are found in the district. The third largest number of households reporting Tsetse and tick problems was in Monduli district and it had the third largest number of households de-worming livestock. The use of draft animals in the district is small, it is the only district practicing fish farming in the region.

It has amongst the poor access to secondary schools, primary schools, health clinics, tertiary and secondary markets, regional capital and tarmac roads compared to other districts. However, it has moderate access to primary markets.

Monduli district has the highest percent of households with no toilet facilities and it has the third highest percent of households owning bicycles, vehicles and tv/video and mobile phones. It has the third highest number of households using mains electricity in the region. The most common source of energy for lighting is the wick lamp and practically all households use firewood for cooking. The district has the smallest percent of households with iron roofs with 65 percent of households having grass. The most common source of drinking water is from piped water. It has the highest percent of households having two or three meal per day compared to other districts and the lowest percent with one meal per day. The district had the highest percent of households that did not eat fish and highest percent of household that had once during the week prior to enumeration, however most households seldom had problems with food satisfaction.

4.2.2 Arumeru

Arumeru district has the largest number of households in the region and it has a third highest percentages of households involved in smallholder agriculture in the region. Most smallholders are involved in crop and livestock farming, followed by crop only. It has a very small number of livestock only households and no pastoralists were found in the district.

The most important livelihood activity for smallholder households in Arumeru district is Livestock Keeping/Herding, followed by Annula Cop Farming. The district has the lowest percent of households with no off-farm activities although it has the highest percent of households with more than one member with off-farm income. Compared to other districts in the region, Arumeru has a second lowest percent of female headed households (20%) and it has one of the highest average age of the household head in the region. With an average household size of 5.3 members per household. Arumeru has a low literacy rate among smallholder households and this is reflected by the district having the low level of school attendance in the region. The literacy rate for the heads of household is also lower than all districts in the region.

It has a second lowest utilized land area per household (1.4ha) and 97 percent of the allocated area is currently being utilised. The district has the first largest planted area in the region, and the third largest planted area per household (0.9ha).

The district is very important for maize production in the region with a planted area of over 48,744 ha, and the planted area per household is the second lowest for the region. The district has the largest planted area of paddy in the region with 1,070 hectares. It also has 78ha of Sorghum. Cassava production is the highest in the region, accounting for 88 percent of the quantity harvested in the region. The district has a largest planted area of Irish potatoes (1,006 ha). The production of beans in Arumeru, is larger than in other districts in the region with a planted area of 25,094ha. There are no groundnuts produced in Arumeru district. Vegetable production is important in the district. It has the largest planted area with tomatoes, cabbage and chilies (1,452 ha, 688 ha and 187 ha respectively) than other districts in the region accounting for 96.6 percent of the tomato planted area, 96.9 percent of the cabbage planted area and 100 percent of the chilly planted area in the region. Traditional cash crops (e.g. tobacco and cotton) are grown in very small quantities.

Compared to other districts in the region, Arumeru has the largest planted area with permanent crops which is dominated by coffee (5,633 ha), banana (3,834 ha), pigeon peas (1,794 ha) and pawpaw (649 ha). Other permanent crops are either not grown or are grown in very small quantities.

As with other districts in the region, most land clearing and preparation is done by hand, however a small amount of land preparation is done by tractor.

The use of inputs in the region is very small, however district differences exist. Arumeru has the largest planted area with improved seed in the region as well as the highest proportion of households using improved seeds. The district has the highest planted area with fertilizers (Farm yard manure and inorganic fertilizer), however most of this is farm yard manure. Compared to other districts in the region, Arumeru district has a highest level of insecticide use. The use of fungicides, although small, was the highest compared to other districts. Application of herbicides was the highest in the region. It has the largest area with irrigation compared to other districts with 18,448 ha of irrigated land. The most common source of water for irrigation is from rivers using gravity. Flood and bucket/watering can are the most common means of irrigation water application and a very small amount of sprinkler irrigation is used.

The most common method of crop storage in Arumeru district is in sacks/open drum, however the proportion of households storing crops in the district is relatively low. Arumeru district is one of the districts with a large number of households selling crops, however for those who did not sell, the main reason for not selling is insufficient production. Arumeru is among the districts with the third highest percent of households processing crops in Arusha region and is almost all done by neighbour machine. The district also has the third highest percent of households selling processed crops to neighbours than other districts and no sales are to farmers associations or large scale farms. Although very small, access to credit in the district is equal to men and women and the main source is “family, friend, relative and private individual” (i.e. non religious organisations/NGO projects, saving and credit society or commercial banks).

A comparatively small number of households receive extension services in Arumeru district and most of it is from the government. The quality of extension services was rated between very good and good by the majority of the households.

Tree farming is moderately important in Arumeru (with 8,156 planted trees) and is mostly *Gravellia* and *Cyprus* spp. The second highest proportion of households with erosion control and water harvesting structures is found in Arumeru district and is mostly erosion control bunds and tree belts, however it also has a number of drainage ditches and vertiver grass.

The district has the largest number of cattle in the region and they are almost all indigenous. Goat production is moderate compared to other districts, however it has the third largest population of sheep in the region. It has the second largest number of pigs in the region and a highest number of chickens. Some ducks, rabbits and donkeys are also found in the district. A number of households reported tsetse and tick problems in Arumeru district and it had the largest number of households de-worming livestock. The district has the largest number of households using draft animals in the region. There are no households practice fish farming.

It has amongst the best access to secondary schools, primary schools, regional capital, health clinics and primary and secondary markets compared to other districts.

The percentages of households without toilet facility in Arumeru district is 10.1 percent and it is among the districts with the highest percent of households owning wheel barrows, vehicles, bicycles, tv/video and mobile phones. It has the largest number of households using mains electricity in the region. The most common source of energy for lighting is the hurricane lamp and practically all households use firewood for cooking. The roofing materials for most of the households

in the district is iron sheets (75%) and grass/leaves (24%). The most common source of drinking water is from piped water. It is one of the districts with the highest percent of households having three meals per day. The district had the highest percent of households that had meat once during the week prior to enumeration and among the lowest percent of those who had not eaten fish during the week prior to enumeration, however most households never had problems with food satisfaction.

4.2.3 Arusha

Arusha district has the lowest number of households in the region and it has the lowest percent of households involved in smallholder agriculture in the region. Most smallholders are involved in crop and livestock farming, followed by production crops only. It has a very small number of livestock only households and no pastoralists were found in the district.

The most important livelihood activity for smallholder households in Arusha district is Annual Crop Farming, followed by Off Farm income. However, the district has the lowest percent of households with no off-farm activities and the lowest percent of households with more than one member with off-farm income. Compared to other districts in the region, Arusha has a highest percent of female headed households (39%) and it has one of the highest average age of the household head in the region. With an average household size of 4.6 members per household which is lower than the regional average. Arusha has a comparatively low literacy rate among smallholder households and this is reflected by the concomitant relatively low level of school attendance in the region. The literacy rate for the heads of household is moderate high than most of districts in the region.

It has a second lowest utilized land area per household (1.4ha) compared to the regional average of 1.5 ha and 97 percent of the allocated area is currently being utilised. The total planted area is greater than in other districts in the region due to the presence of good wet and dry seasons, however it has the second lowest planted area per household (1.1ha) attributed to the high number of smallholders in the district.

The district is the least important for maize production in the region with a planted area of over 1,919 ha, however the planted area per household is 1.0 ha which is the largest in the region. There was no production of Paddy in the district. Sorghum, Irish potatoes, cassava and wheat are also not produced in the district. The district has the largest planted area of cassava accounting for 38 percent of the cassava planted area in the region. The production of beans in Arusha is much lower than in other districts in the region with a planted area of 1,014ha. Oil seed crops are not produced in the district. Vegetable production is not important in the district. Tobacco is not grown in the district.

Permanent crops are not important in Arusha as only bananas are grown in small quantity (3 ha).

As with other districts in the region, most land clearing and preparation is done by hand and very small land preparation is done by tractor.

The use of inputs in the region is very small, however district differences exist. Arusha districts has the smallest planted area with improved seed in Arusha region. The district also has the second smallest planted area with fertilizers (Farm yard manure and inorganic fertilizer), however most of this is farm yard manure. Compared to other districts in the region, Arusha district has the smallest area of insecticide and fungicide use. There is no use of herbicides in the district. It has

the smallest area with irrigation compared to other districts with 251 ha of irrigated land. The most common source of water for irrigation is from canals. Flooding is the only means of irrigation water application.

The most common method of crop storage in Arusha is sacks/ open drums, however the proportion of households storing crops in the district is among the highest in the region. The district has the lowest percent of households selling crops, however for those who did not sell, the main reason for not selling is insufficient production. Arusha district is one of the districts in Arusha region with a high percent of households processing crops and is almost all done by traders. However, the district has the highest percent of households processing crops by neighbour machine. The district is one of the districts with the highest percent of households selling processed crops. There was no access to credit in the districts.

A comparatively larger number of households receive extension services in Arusha district and almost all of this is from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming is not important in Arusha district (with 137 planted trees) and is mostly *Gravellia* with some *Senna* spp. The highest proportion of households with water harvesting bunds is found in Arusha district and is, however it has the highest number of erosion control bunds.

The district has a lowest number of cattle in the region and they are almost all indigenous. Goat and sheep production is the lowest compared to other districts. It has the lowest number of pigs in the region and the smallest number of chickens, all of which are indigenous. Virtually no improved chicken are found in the district. There are no ducks, rabbits and turkey in the districts. There were no households reported tsetse but the majority reported tick problems in Arusha district. The majority of household in Arusha de-worm their livestock. The use of draft animals in the district is very small. There are no households practicing fish farming.

It has amongst the best access to secondary schools, primary schools, hospitals and feeder roads compared to other districts. However, it has one of the worse access to primary markets.

Arusha district has a lowest percent of households with no toilet facilities and it has one of the lowest percent of households owning landlines, vehicles and mobile phones. It has the second lowest number of households using mains electricity in the region. The most common source of energy for lighting is the wick lamp and practically all households use firewood for cooking. The district has a high percent of households with iron sheets (67%) with 26 percent of households having grass and mud. The most common source of drinking water is from piped water. Sixty two percent of the households in the district reported having one or two meals per day and thirty eight percent of household reported having more than two meals per day. The district had a second lowest percent of households that did not eat meat and lowest percent of household that did not eat fish during the week prior to enumeration, however most households seldom had problems with food satisfaction.

4.2.4 Karatu

Karatu district has the second smallest number of households in the region and it has the second highest percent of households involved in smallholder agriculture in the region. Most smallholders are involved in crop and livestock farming, followed by crop only. It has a small number of livestock only households and very few pastoralists were found in the district.

The most important livelihood activity for smallholder households in Karatu district is Annual Crop Farming, followed by livestock rearing. However, the district has the second highest percent of households with no off-farm activities and the second highest percent of households with more than one member with off-farm income. Compared to other districts in the region, Karatu has a lowest percent of female headed households (13%) and it has one of the highest average age of the household head in the region. With an average household size of 5.8 members per household which is higher than the regional average. Karatu has a comparatively low literacy rate among smallholder households and this is reflected by the concomitant relatively low level of school attendance in the region. The literacy rate for the heads of household is a second lowest in the region.

It has a third highest utilized land area per household (1.6ha) compared to the regional average of 1.5 ha and 99 percent of the allocated area is currently being utilised. The total planted area is the third highest compared to other districts in the region, however it has the third highest planted area per household (1.3ha) attributed to the small number of smallholders in the district.

The district is important for maize production in the region with a planted area of over 19,230 ha, however the planted area per household is 0.7 ha which is the third largest in the region. There was a little production of Paddy and Sorghum in the district and highest for wheat production. Irish potatoes and cassava are also not produced in the district. The production of beans in Karatu is third lowest compared to other districts in the region with a planted area of 10,423ha. Oil seed crops are produced in the small scale. Vegetable production is the second important in the district. Tobacco is not important in the district.

Permanent crops are important in Karatu as bananas and pigeon peas are grown in the district with the planted area of (191 ha and 2,536) respectively .

As with other districts in the region, most land clearing and preparation is done by hand and small land preparation is bush clearance.

The use of inputs in the region is very small. Karatu district has the second highest planted area with improved seed in Arusha region. The district also has the second highest planted area with fertilizers (Farm yard manure, composite and inorganic fertilizer), however most of this is farm yard manure. Compared to other districts in the region, Karatu district has the second largest area of insecticide and fungicide use. There is a moderate use of herbicides in the district. It has the second largest area with irrigation compared to other districts with 2,883 ha of irrigated land. The most common source of water for irrigation is from river. Gravity is the common means of irrigation water application.

The most common method of crop storage in Karatu is sacks/ open drums, however the proportion of households storing crops in the district is among the highest in the region. The district has the second highest percent of households selling crops, however for those who did not sell, the main reason for not selling is insufficient production. Karatu district is one of the districts in Arusha region with a high percent of households processing crops and is almost all done by neighbour machine. However, the district has the low percent of households processing crops on farm by machine. The district is one of the districts with the lowest percent of households selling processed crops. There was no access to credit in the district.

A comparatively small number of households receive extension services in Karatu district and almost all of this is from the government. The quality of extension services was rated between very good and good by the majority of the households.

Tree farming is relatively important in Karatu district (with 5,448 planted trees) and is mostly Eucalyptus with Gravelis. The second lowest proportion of households with water harvesting bunds is found in Karatu district and is, however it has the second highest number of erosion control bunds.

The district has a second lowest number of cattle in the region and they are almost all indigenous. It has the second lowest production of Goat and sheep compared to other districts. It has the highest number of pigs in the region and has the second highest number of chickens, mostly are indigenous. Virtually very few improved chicken are found in the district. There are few ducks, and no rabbits or turkey in the district. There were moderate number of households reported tsetse but the majority reported tick problems in Karatu district. The moderate number of household in Karatu de-worm their livestock. The use of draft animals in the district is moderate. There are no households practicing fish farming.

It has moderate access to secondary schools, primary schools, all whether roads, feeder roads, hospitals, health clinic compared to other districts. However, it has one of the worst access to regional capital.

Karatu district has the second lowest percent of households with no toilet facilities and it has one of the highest percent of households owning landlines, vehicles and mobile phones. It has the second highest number of households using mains electricity in the region. The most common source of energy for lighting is the wick lamp and practically all households use firewood for cooking. The district has the second highest percent of households with iron sheets (43%) with 50 percent of households having grass. The most common source of drinking water is from piped water. Twenty nine percent of the households in the district reported having one or two meals per day and seven one percent of household reported having more than two meals per day. The district had a highest percent of households that did not eat meat and second highest percent of household that did not eat fish during the week prior to enumeration, however most households seldom had problems with food satisfaction.

4.2.5 Ngorongoro

Ngorongoro district has the smallest number of households in the region and it has a highest percentages of households involved in smallholder agriculture in the region. Most smallholders are involved in crop and livestock farming, followed by livestock only. It has a small number of household producing crops only and very few pastoralists were found in the district.

The most important livelihood activity for smallholder households in Ngorongoro district is Livestock Keeping/Herding, followed by Annual Cop Farming. The district has the highest percent of households with no off-farm activities although it has the third highest percent of households with more than one member with off-farm income. Compared to other districts in the region, Ngorongoro has a second highest percent of female headed households (30%) and it has one of the lowest average age of the household head in the region. With an average household size of 4.9 members per household. Ngorongoro has a high literacy rate among smallholder households and this is reflected by the district having the high level of school attendance in the region. The literacy rate for the heads of household is also higher than all districts in the region.

It has a lowest utilized land area per household (0.5ha) and 71 percent of the allocated area is currently being utilised. The district has the second smallest planted area in the region, and the lowest planted area per household (0.5ha).

The district is not important for maize production in the region with a planted area of over 7,904 ha, and the planted area per household is the lowest for the region. There is no production of paddy in the district. It has 928ha of Sorghum. There is small production of Cassava in the district, accounting for 10 percent of the quantity harvested in the region. The district has a second largest planted area of Irish potatoes (257 ha). The production of beans in Ngorongoro is the second lowest in the region with a planted area of 2,099ha. There are no groundnuts produced in Ngorongoro district. Vegetable production is moderately important in the district. It has the second largest planted area with tomatoes, cabbage (52 ha and 22 ha respectively) and no chilies produced in the district accounting for 3.4 percent of the tomato planted area and 22.7 percent of the cabbage planted area in the region. Traditional cash crops (e.g. tobacco and cotton) are grown in very small quantities.

Compared to other districts in the region, Ngorongoro has the second lowest planted area with permanent crops which is mango (12 ha), banana (5 ha) and orange (2 ha). Other permanent crops are either not grown or are grown in very small quantities.

As with other districts in the region, most land clearing and preparation is done by hand, however a small amount of land preparation is done by bush clearing.

The use of inputs in the region is very small. Ngorongoro has the second smallest planted area with improved seed in the region as well as the second lowest proportion of households using improved seeds. The district has the lowest planted area with fertilizers (Farm yard manure and compost manure), however most of this is farm yard manure. Compared to other districts in the region, Ngorongoro district has a second lowest level of insecticide use. The use of fungicides is the lowest compared to other districts. Application of herbicides was among the lowest in the region. It has the second smallest area with irrigation compared to other districts with 938 ha of irrigated land. The most common source of water for irrigation is from canal. Flood is the most common means of irrigation water application and a very small amount of bucket/watering can irrigation is used.

The most common method of crop storage in Ngorongoro district is in locally made traditional structures, however the proportion of households storing crops in the district is relatively low. Ngorongoro district is one of the districts with a small number of households selling crops, however for those who did not sell, the main reason for not selling is insufficient production. Ngorongoro is the districts with the second lowest percent of households processing crops in Arusha region and is almost all done by neighbour machine. The district also has the second highest percent of households selling processed crops to neighbours compared to other districts and few sales are made to farmers associations. Although very small, access to credit in the district was made to women only and the main source is religious organisations/NGO projects.

A small number of households receive extension services in Ngorongoro district and most of it is from the government. The quality of extension services was rated between very good and good by the majority of the households.

Tree farming is not important in Ngorongoro (with 31 planted trees) and all are Gravelis. The lowest proportion of households with erosion control is found in Ngorongoro district and mostly the erosion control is drainage ditches, however it also has a number of erosion control bands.

The district has the second largest number of cattle in the region and they are almost all indigenous. Goat production is one of the highest compared to other districts, however it has the second largest population of sheep in the region. There are no pigs in the district and a second lowest number of chickens. Some rabbits and donkeys are also found in the district. A number of households reported tsetse and tick problems in Ngorongoro district and it had the large number of households de-worming livestock. The district has the second lowest number of households using draft animals in the region. There are no households practice fish farming.

It has amongst the best access to feeder roads compared to other districts. The percentages of households without toilet facility in Ngorongoro district is 83.6 percent and it is among the districts with the lowest percent of households owning wheel barrows, vehicles, bicycles, tv/video and mobile phones. It has the lowest number of households using mains electricity in the region. The most common source of energy for lighting is the firewood and practically all households use firewood for cooking. The roofing materials for most of the households in the district is grass/leaves (55%) and grass and mud (30%). The most common source of drinking water is from river. It is has the lowest percent of households having three meals per day. The district had the lowest percent of households that had meat once during the week prior to enumeration and highest percent of those who had not eaten fish during the week prior to enumeration, however most households seldom had problems with food satisfaction.

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TYPE OF AGRICULTURE HOUSEHOLD

2.1 TYPE OF AGRICULTURE HOUSEHOLD: Number of Agricultural Households by type of household and District during 2002/03 Agriculture Year

District	Agriculture, Non Agriculture and Urban Households								
	Rural households involved in Agriculture	% of Total rural households	Rural households NOT involved in Agriculture	% of Total Rural households	Total Rural Households	% of Total households	Urban Households	% of Total households	Total Number of Households (from 2002 Pop. Census)
	Number	%	Number	%	Number	%	Number	%	Number
Monduli	25,996	75	8,846	25	34,842	85	6,270	15	41,112
Arumeru	76,022	85	13,746	15	89,768	79	23,234	21	113,002
Arusha	1,637	71	668	29	2,305	3	70,139	97	72,444
Karatu	27,341	88	3,677	12	31,018	93	2,281	7	33,299
Ngorongoro	23,860	94	1,391	6	25,251	94	1,471	6	26,722
Total	154,857	85	28,327	15	183,184	64	103,395	36	286,579

2.2 TYPE OF AGRICULTURE HOUSEHOLD: Number of Agriculture Households By Type of Holding and District during 2002/03 Agricultural Year

District	Type of Agriculture Household								Total Number of Agriculture Households	Total Number of Households Growing Crops	Total Number of Households Rearing Livestock
	Crops Only		Livestock Only		Crops & Livestock		Total				
	Number of households	%	Number of households	%	Number of households	%	Number of households	%			
Monduli	3,647	12	7,176	24	14,849	49	25,996	85	25,671	18,496	22,349
Arumeru	16,433	54	975	6	58,613	54	76,022	49	76,022	75,046	59,589
Arusha	398	1	54	0	1,185	1	1,637	1	1,637	1,583	1,239
Karatu	7,291	24	892	6	18,926	18	27,341	18	27,109	26,217	20,050
Ngorongoro	2,743	9	6,611	42	14,394	13	23,860	15	23,748	17,137	21,117
Total	30,513	100	15,709	100	107,966	100	154,857	100	154,187	138,479	124,344

NUMBER OF AGRICULTURE HOUSEHOLDS

3.0: HOUSEHOLDS DEMOGRAPHICS: Number of Agricultural Households and Average Household Size By Sex of the Head of Household and District, 2002/03 Agricultural Year

District	Male			Female			Total		Average Household Size
	Number	%	Average Household Size	Number	%	Average Household Size	Number	%	
Monduli	20,719	80		5,277	20.3		25,996	100	5.6
Arumeru	60,848	80		15,174	20.0		76,022	100	5.3
Arusha	997	61		640	39.1		1,637	100	4.6
Karatu	23,908	87		3,433	12.6		27,341	100	5.8
Ngorongoro	16,809	70		7,051	29.6		23,860	100	4.9
Total	123,281	80		31,576	20		154,857	100	5.4

3.1 The livelihood Activities/Source of Income of the Households Ranked in Order of Importance by District

District	livelihood activity						
	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Monduli	3	6	1	4	5	7	2
Arumeru	1	5	2	3	6	7	4
Arusha	1	6	3	2	5	7	4
Karatu	1	6	2	4	5	7	3
Ngorongoro	2	6	1	4	5	7	3
Total	1	5	2	4	6	7	3

RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES

3.1a RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: First Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Monduli	8,362	497	13,543	2,983	375	0	222
Arumeru	19,921	13,354	11,605	27,754	3,151	0	588
Arusha	797	0	160	718	0	0	0
Karatu	18,594	139	4,570	3,645	398	0	72
Ngorongoro	5,629	121	15,578	1,225	656	0	120
Total	53,303	14,110	45,457	36,326	4,580	0	1,002

3.1b RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Second Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Monduli	7,029	353	6,307	4,304	854	0	7,237
Arumeru	30,734	10,076	24,235	7,113	2,420	0	1,090
Arusha	785	0	629	156	53	0	0
Karatu	6,966	176	11,737	4,757	888	0	2,646
Ngorongoro	10,496	124	4,713	2,596	1,706	62	3,158
Total	56,011	10,729	47,622	18,926	5,921	62	14,131

3.1c RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Third Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Monduli	1,636	232	1,918	3,959	647	0	12,250
Arumeru	17,071	6,289	19,428	10,064	5,034	141	13,986
Arusha	0	32	412	184	38	0	878
Karatu	588	556	4,031	3,393	1,126	76	14,037
Ngorongoro	943	357	360	5,409	1,594	228	5,761
Total	20,238	7,467	26,150	23,009	8,441	444	46,912

3.1d RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Fourth Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Monduli	1,302	589	918	3,517	436	134	4,482
Arumeru	2,684	4,816	6,825	6,615	4,748	0	28,692
Arusha	0	57	0	77	53	0	525
Karatu	67	896	544	1,490	1,015	0	6,574
Ngorongoro	305	538	59	1,922	484	0	3,253
Total	4,358	6,896	8,346	13,620	6,735	134	43,526

3.1e RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Fifth Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Monduli	163	234	81	172	1,347	0	523
Arumeru	934	580	1,369	2,027	2,052	0	13,994
Arusha	0	38	0	0	77	0	0
Karatu	69	366	125	413	574	0	432
Ngorongoro	0	124	0	477	304	0	782
Total	1,165	1,342	1,575	3,090	4,354	0	15,731

3.1f RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Sixth Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Monduli	0	0	15	0	86	0	0
Arumeru	189	0	0	193	0	0	333
Arusha	0	0	0	0	0	0	0
Karatu	0	0	148	72	0	0	0
Ngorongoro	119	0	0	0	0	0	0
Total	308	0	163	265	86	0	333

3.1g RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Seventh Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Monduli	0	0	0	0	0	0	0
Arumeru	0	0	0	0	0	0	0
Arusha	0	0	0	0	0	0	0
Karatu	0	0	0	0	0	0	0
Ngorongoro	119	0	110	0	52	0	0
Total	119	0	110	0	52	0	0

HOUSEHOLDS DEMOGRAPHYS

3.2 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members By Sex and Age Group for the 2002/03 Agricultural Year (row %)

Age Group	Sex					
	Male		Female		Total	
	Number	%	Number	%	Number	%
Less than 4	61,251	49	64,516	51	125,766	100
05 - 09	70,011	50	70,028	50	140,039	100
10 - 14	59,064	50	59,218	50	118,282	100
15 - 19	48,086	51	45,467	49	93,553	100
20 - 24	30,996	46	36,459	54	67,455	100
25 - 29	28,013	47	31,974	53	59,987	100
30 - 34	23,802	49	25,167	51	48,968	100
35 - 39	22,375	49	23,534	51	45,909	100
40 - 44	16,639	51	15,945	49	32,584	100
45 - 49	15,799	59	10,816	41	26,615	100
50 - 54	12,294	60	8,058	40	20,352	100
55 - 59	6,511	54	5,628	46	12,138	100
60 - 64	6,307	49	6,449	51	12,756	100
65 - 69	5,599	55	4,599	45	10,198	100
70 - 74	4,508	55	3,636	45	8,144	100
75 - 79	2,318	56	1,856	44	4,174	100
80 - 84	2,478	52	2,274	48	4,752	100
Above 85	1,791	61	1,136	39	2,928	100
Total	417,841	50	416,760	50	834,601	100

3.3 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members By Sex and Age Group for the 2002/03 Agricultural Year (column %)

Age Group	Sex					
	Male		Female		Total	
	Number	%	Number	%	Number	%
Less than 4	61,251	15	64,516	15	125,766	15
05 - 09	70,011	17	70,028	17	140,039	17
10 - 14	59,064	14	59,218	14	118,282	14
15 - 19	48,086	12	45,467	11	93,553	11
20 - 24	30,996	7	36,459	9	67,455	8
25 - 29	28,013	7	31,974	8	59,987	7
30 - 34	23,802	6	25,167	6	48,968	6
35 - 39	22,375	5	23,534	6	45,909	6
40 - 44	16,639	4	15,945	4	32,584	4
45 - 49	15,799	4	10,816	3	26,615	3
50 - 54	12,294	3	8,058	2	20,352	2
55 - 59	6,511	2	5,628	1	12,138	1
60 - 64	6,307	2	6,449	2	12,756	2
65 - 69	5,599	1	4,599	1	10,198	1
70 - 74	4,508	1	3,636	1	8,144	1
75 - 79	2,318	1	1,856	0	4,174	1
80 - 84	2,478	1	2,274	1	4,752	1
Above 85	1,791	0	1,136	0	2,928	0
Total	417,841	100	416,760	100	834,601	100

3.4 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members by Sex and District for the 2002/03 Agricultural Year

District	Sex					
	Male		Female		Total	
	Number	%	Number	%	Number	%
Monduli	73,365	51	71,573	49	144,938	100
Arumeru	198,536	49	207,745	51	406,281	100
Arusha	3,463	46	4,067	54	7,530	100
Karatu	84,284	53	75,099	47	159,383	100
Ngorongoro	58,193	50	58,276	50	116,469	100
Total	417,841	50	416,760	50	834,601	100

3.5 HOUSEHOLDS DEMOGRAPHYS: Number of Agriculture Household Members 5 years and above Who Can Read and Write Languages by Type of Language and District, 2002/03 Agricultural Year

District	Read & Write									
	Swahili		Swahili & English		Any Other Language		Don't Read / Write		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Monduli	51,715	42.8	5,832	4.8	119	0.1	63,086	52.2	120,752	100
Arumeru	227,826	64.4	46,793	13.2	0	0.0	79,093	22.4	353,712	100
Arusha	2,955	43.0	1,932	28.1	0	0.0	1,986	28.9	6,873	100
Karatu	90,437	66.7	15,721	11.6	0	0.0	29,399	21.7	135,557	100
Ngorongoro	36,694	39.9	3,241	3.5	0	0.0	52,006	56.6	91,941	100
Total	409,628	57.8	73,519	10.4	119	0.0	225,569	31.8	708,835	100

3.6 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members 5 years and above By School Attendance and District , 2002/03 Agricultural Year

District	School Attendance							
	Attending School		Completed		Never Attended to School		Total	
	Number	%	Number	%	Number	%	Number	%
Monduli	33,540	28	27,451	23	59,761	49	120,752	100
Arumeru	128,074	36	155,383	44	70,256	20	353,712	100
Arusha	2,931	43	1,975	29	1,967	29	6,873	100
Karatu	51,266	38	57,233	42	27,058	20	135,557	100
Ngorongoro	22,309	24	19,368	21	50,263	55	91,941	100
Total	238,119	34	261,410	37	209,305	30	708,835	100

3.7 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members by Main Activity and District, 2002/03 Agricultural Year

District	Main Activity									
	Crop/Seaweed Farming		Livestock Keeping / Herding		Livestock Pastoralist		Fishing		Government / Parastatal	
	Number	%	Number	%	Number	%	Number	%	Number	%
Monduli	35,603	29	28,752	24	3,344	3	0	0	283	0
Arumeru	127,024	36	26,297	7	677	0	0	0	7,084	2
Arusha	2,166	32	339	5	0	0	0	0	71	1
Karatu	59,035	44	6,308	5	256	0	0	0	793	1
Ngorongoro	18,595	20	36,573	40	420	0	62	0	347	0
Total	242,423	34	98,269	14	4,696	1	62	0	8,577	1

cont... Number of Agricultural Household Members By Main Activity and District, 2002/03 Agricultural Year

District	Main Activity									
	Private - NGO / Mission / etc		Employed (Non Farming)		Employed (Non Farming)		Family Helper (Non Agriculture)		Not Working & Available	
	Number	%	Number	%	Number	%	Number	%	Number	%
Monduli	1,183	1	960	1	947	1	516	0	394	0
Arumeru	13,493	4	7,999	2	11,866	3	2,254	1	2,830	1
Arusha	162	2	549	8	113	2	38	1	0	0
Karatu	2,473	2	1,217	1	1,206	1	735	1	344	0
Ngorongoro	660	1	294	0	647	1	61	0	62	0
Total	17,970	3	11,018	2	14,779	2	3,604	1	3,629	1

cont... Number of Agricultural Household Members By Main Activity and District, 2002/03 Agricultural Year

District	Main Activity											
	& Unavailable		Housemaker / Housewife		Student		Work / Too Old / Retired		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Monduli	0	0	1,074	1	32,629	27	14,439	12	630	1	120,752	100
Arumeru	749	0	5,483	2	123,042	35	23,695	7	1,220	0	353,712	100
Arusha	0	0	0	0	2,822	41	613	9	0	0	6,873	100
Karatu	49	0	1,481	1	50,510	37	10,901	8	249	0	135,557	100
Ngorongoro	0	0	2,198	2	20,207	22	11,640	13	177	0	91,941	100
Total	798	0	10,235	1	229,209	32	61,289	9	2,276	0	708,835	100

Members By Level of involvement in Farming Activity and District, 2002/03 Agricultural Year

District	Involvement in Farming									
	Works Full- time on Farm		Works Part- time on		Rarely Works on Farm		Never Works on Farm		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Monduli	62,046	51	3,732	3	27,383	23	27,591	23	120,752	100
Arumeru	138,561	39	18,645	5	107,093	30	89,413	25	353,712	100
Arusha	2,324	34	381	6	2,860	42	1,308	19	6,873	100
Karatu	60,554	45	9,363	7	41,566	31	24,074	18	135,557	100
Ngorongoro	45,604	50	7,076	8	15,742	17	23,519	26	91,941	100
Total	309,088	44	39,198	6	194,643	27	165,906	23	708,835	100

3.10 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Households and Average Household Size By Sex of the Head of Household and District, 2002/03 Agricultural Year

District	Male			Female			Total		Average Household Size
	Number	%	Average Household Size	Number	%	Average Household Size	Number	%	
Monduli	20,719	80		5,277	20.3		25,996	100	5.6
Arumeru	60,848	80		15,174	20.0		76,022	100	5.3
Arusha	997	61		640	39.1		1,637	100	4.6
Karatu	23,908	87		3,433	12.6		27,341	100	5.8
Ngorongoro	16,809	70		7,051	29.6		23,860	100	4.9
Total	123,281	80		31,576	20		154,857	100	5.4

3.11 HOUSEHOLD DEMOGRAPHYS: Number of Agricultural Households By Number of Household Members with Off-farm Income Generating Activities and District, 2002/03

District	Number of household members with Off farm income							
	One		Two		More than Two		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Monduli	10,573	83	1,632	13	581	5	12,786	100
Arumeru	36,594	68	12,232	23	5,136	10	53,962	100
Arusha	963	89	115	11	0	0	1,078	100
Karatu	9,952	75	3,020	23	376	3	13,347	100
Ngorongoro	5,580	78	1,033	14	581	8	7,194	100
Total	63,663	72	18,032	20	6,673	8	88,367	100

3.12 HOUSEHOLDS DEMOGRAPHYS: Number of Heads of Agricultural Households By Maximum Education Level Attained and District, 2002/03 Agricultural Year

District	Maximum Education Level Attained							
	No Education	Primary Education	Post Primary Education	Secondary Education	Post Secondary Education	University & Equivalent Education	Adult Education	Total
Monduli	15,372	9,247	0	657	34	0	687	25,996
Arumeru	22,822	42,893	1,430	5,956	1,125	349	1,446	76,022
Arusha	761	773	0	89	0	0	14	1,637
Karatu	8,038	17,846	151	779	207	0	321	27,341
Ngorongoro	15,606	7,529	234	185	0	59	247	23,860
Total	62,599	78,288	1,815	7,665	1,366	408	2,716	154,857

3.13 HOUSEHOLDS DEMOGRAPHYS: Mean, Median, Mode of Age of Head of Agricultural Household and District

District	Male			Female			Total		
	Mean	Median	Mode	Mean	Median	Mode	Mean	Median	Mode
Monduli	43	40	40	38	35	25	42	40	40
Arumeru	44	42	30	49	49	50	45	42	50
Arusha	48	45	55	43	40	27	46	43	55
Karatu	46	44	45	51	51	38	46	44	45
Ngorongoro	43	38	30	40	38	30	42	38	30
Total	44	41	30	45	42	38	44	42	30

3.14 Time Series of Male and Female Headed Households

Type of Holding	NCSA 1994/95	EAS 1995/96	EAS 1996/97	IAS 1997/98	DIAS 1998/99	NCSA 2002/03
Male Heads	106397	180366	215439	2091165	195625	123281
Female Heads	145749	39585	37343	40848	46724	31576
Total	252,146	219,951	252,782	2,132,013	242,349	154,857
Male headed (Percentage)	42	82	85	98	81	80
Female headed (Percentage)	58	18	15	2	19	20
Total	100	100	100	100	100	100

3.15 Literacy Rate of Heads of Households by Sex and District

District	Literacy								
	Know			Don't know			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Monduli	9,622	1,036	10,658	11,097	4,241	15,338	20,719	5,277	25,996
Arumeru	48,537	5,655	54,192	12,311	9,519	21,830	60,848	15,174	76,022
Arusha	788	89	877	210	551	761	997	640	1,637
Karatu	17,705	1,683	19,387	6,203	1,751	7,954	23,908	3,433	27,341
Ngorongoro	6,741	1,457	8,198	10,068	5,594	15,662	16,809	7,051	23,860
Total	83,393	9,919	93,312	39,889	21,657	61,545	123,281	31,576	154,857

LAND ACCESS/OWNERSHIP

4.1 LAND ACCESS/OWNERSHIP: Number of Farming Households by Type of Land Ownership/Tenure and District for the 2002/03 Agricultural Year

District	Land Access														Total Number of Households
	Leased/Certificate of Ownership		Owned under Customary Law		Bought		Rented		Borrowed		Households with Area Shared Cropped		under Other Forms of Tenure		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Monduli	1,758	7	19,573	74	2,137	8	1,039	4	725	3	228	1	1,010	4	26,471
Arumeru	6,717	6	59,334	56	19,105	18	8,670	8	6,659	6	1,710	2	3,914	4	106,109
Arusha	75	4	1,583	76	77	4	77	4	77	4	115	6	77	4	2,079
Karatu	1,783	5	23,081	68	3,244	10	2,451	7	2,231	7	562	2	427	1	33,777
Ngorongoro	4,406	23	7,543	39	175	1	122	1	1,487	8	5,365	28	233	1	19,331
Total	14,739	8	111,114	59	24,738	13	12,360	7	11,178	6	7,979	4	5,660	3	187,768

4.2 LAND ACCESS/OWNERSHIP: Area of Land (ha) by Ownership/Tenure (Hectare) and District for the 2002/03 Agricultural Year

District	Land Access/ Ownership (Hectare)							
	Area Leased/Certificate of Ownership	Area Owned Under Customary Law	Area Bought	Area Rented	Area Borrowed	Area Shared Cropped	Area under Other Forms of Tenure	Total
Monduli	5,373	55,956	5,017	11,214	1,206	266	2,588	81,621
Arumeru	6,147	65,854	17,790	7,280	6,074	1,272	5,519	109,936
Arusha	120	2,743	78	70	62	39	109	3,220
Karatu	1,515	35,255	4,727	1,962	1,600	193	262	45,513
Ngorongoro	4,033	10,417	125	35	593	2,089	149	17,440
Total	17,189	170,225	27,736	20,561	9,534	3,859	8,627	257,732
%	261,130	2,586,086	421,376	312,363	144,847	58,623	131,069	3,915,495

LAND USE

5.1 LAND USE: Number of Agricultural Households By Type of Land Use and District for the 2002/03 Agricultural Year

Districts	Type of Land Use												Area of land Utilized by household	Total Number of Households
	Households with Temporary Mono Crops	Households with Temporary Mixed Crops	Households with Permanent Mono Crops	Households with Permanent Mixed Crops	Households with Permanent / Annual Mix	Households with Pasture	Households with Fallow	Households with Natural Bush	Households with Planted Trees	Households Rented to Others	Households Unusable	Households of Uncultivated Usable Land		
Monduli	4,876	14,733	826	402	799	8,460	1,409	990	1,078	559	2,269	4,673	41,073	26,471
Arumeru	29,021	48,474	7,522	19,185	9,895	11,565	5,326	1,181	22,403	788	3,240	2,773	161,373	106,109
Arusha	645	1,125	14	75	95	287	0	0	148	0	38	0	2,426	2,079
Karatu	9,011	20,406	1,121	746	689	5,432	1,256	414	5,343	1,064	774	566	46,821	33,777
Ngorongoro	10,420	7,825	354	477	118	59	403	0	59	0	175	4,281	24,170	19,331
Total	53,973	92,563	9,837	20,884	11,596	25,803	8,394	2,585	29,030	2,411	6,495	12,293	275,863	187,768

5.2 LAND USE: Area of Land (Ha) by type of Land Use and District for the 2002/03 Agricultural Year

District	Land use area												Total
	Area under Temporary Mono Crops	Area under Temporary Mixed Crops	Area under Permanent Mono Crops	Area under Permanent Mixed Crops	Area under Permanent / Annual Mix	Area under Pasture	Area under Fallow	Area under Natural Bush	Area under Planted Trees	Area Rented to Others	Area Unusable	Area of Uncultivated Usable Land	
Monduli	5,375	31,889	612	447	1,097	28,034	2,792	760	97	317	1,566	8,723	81,708
Arumeru	23,027	48,283	1,579	8,427	4,606	9,015	8,011	110	1,840	829	1,063	3,021	109,810
Arusha	697	1,951	3	75	114	355			10		16		3,220
Karatu	10,234	24,811	329	429	473	4,924	1,277	324	1,291	823	311	222	45,448
Ngorongoro	5,980	5,805	45	178	95	7	268		24		73	4,965	17,440
Total	45,312	112,739	2,567	9,556	6,386	42,336	12,348	1,194	3,261	1,969	3,028	16,931	257,627
%	18	44	1	4	2	16	5	0	1	1	1	7	100

5.3: Number of Agricultural Households by Whether All Land Available to the Household Was Used and District, 2002/03 Agricultural Year

District	Was all Land Available to the Hh Used During 2002/03?					
	Yes		No		Total	
	Number	Percent	Number	Percent	Number	Percent
Monduli	11,102	60	7,394	40	18,496	100
Arumeru	65,796	88	9,250	12	75,046	100
Arusha	1,468	93	115	7	1,583	100
Karatu	23,867	91	2,350	9	26,217	100
Ngorongoro	11,230	66	5,907	34	17,137	100
Total	113,463	82	25,015	18	138,479	100

5.4: Number of Agricultural Households by Whether they Consider Having Sufficient Land for the Household and District, 2002/03 Agricultural Year

District	Do you Consider that you have sufficient land for the Hh?					
	Yes		No		Total	
	Number	Percent	Number	Percent	Number	Percent
Monduli	5,449	29	13,047	71	18,496	100
Arumeru	15,362	20	59,684	80	75,046	100
Arusha	371	23	1,212	77	1,583	100
Karatu	10,587	40	15,630	60	26,217	100
Ngorongoro	4,440	26	12,696	74	17,137	100
Total	36,209	26	102,270	74	138,479	100

5.5: Number of Agricultural Households by whether Female Members of the Household Own or Have Customary Right to Land and District, 2002/03 Agricultural Year

District	Do any Female Members of the Hh own or have customary right					
	Yes		No		Total	
	Number	Percent	Number	Percent	Number	Percent
Monduli	3,342	18	15,154	82	18,496	100
Arumeru	13,441	18	61,605	82	75,046	100
Arusha	220	14	1,363	86	1,583	100
Karatu	2,388	9	23,829	91	26,217	100
Ngorongoro	1,852	11	15,285	89	17,137	100
Total	21,242	15	117,236	85	138,479	100

**TOTAL ANNUAL CROP & VEGETABLES PRODUCTION
WET & DRY SEASONS**

7.1 & 7.2a TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Area Planted (ha) by Season and District.

District	Dry Season		Wet Season		Total Area Planted (Hectare)	% Area planted in Dry Season
	Number of household	Planted area (hectare)	Number of household	Planted Area (hectare)		
Monduli	3404	2,118	36,173	35,430	37,548	5.64
Arumeru	56,830	19,101	123,262	63,865	82,966	23.02
Arusha	545	254	2,959	2,668	2,923	8.70
Karatu	11,853	6,804	48,959	28,211	35,016	19.43
Ngorongoro	1,535	393	26,912	11,130	11,523	3.41
Total	74,167	28,671	238,265	141,304	169,976	16.87

7.1 & 7.2b TOTAL ANNUAL CROPS AND VEGETABLE PRODUCTION: Number of Crop Growing Households Planting Crops by Season and District.

District	Dry Season		Wet Season		Total Number of Crop Growing Households
	Number of households Growing Crops	Number of households NOT Growing Crops	Number of households Growing Crops	Number of households NOT Growing Crops	
Monduli	3074	22,922	17,922	8,074	25,996
Arumeru	34307	41,715	65,376	10,646	76,022
Arusha	292	1,346	1,583	54	1,637
Karatu	9287	18,054	25,184	2,158	27,341
Ngorongoro	1062	22,799	16,671	7,189	23,860
Total	48021	106,836	126,736	28,121	154,857

7.1 & 7.2d TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Agriculture Households by Area Planted (ha) and crop for the Agriculture Year 2002/03 - Wet and Dry Seasons, Arusha Region

Crop	Dry Season		Wet Season		Total Area Planted Dry & Wet Season	% Area Planted in Dry Season
	Number of Households	Planted area (ha)	Number of Households	Planted area (ha)		
CEREALS	35,573	15,253	124,281	88,067	103,320	0.1476
Maize	33,929	14,618	117,346	85,368	99,986	0.1462
Paddy	1,233	542	1,681	902	1,444	0.3754
Sorghum	350	69	4,318	1,516	1,585	0.0433
Bulrush Millet	0	0	0	0	0	0.0000
Finger Millet	60	24	937	281	306	0.0799
ROOTS & TUBERS	1,681	363	5,077	1,228	1,590	0.2280
Cassava	257	10	1,311	168	178	0.0565
Sweet Potatoes	353	83	560	51	134	0.6186
Irish Potatoes	1,071	269	3,206	1,008	1,277	0.2109
PULSES	25,131	9,496	92,793	44,965	54,461	0.1744
Mung Beans	167	88	48	19	107	0.8202
Beans	24,838	9,370	87,551	42,111	51,481	0.1820
Cowpeas	126	37	1,024	226	263	0.1415
Green Gram	0	0	695	235	235	0.0000
Chich Peas	0	0	3,351	2,298	2,298	0.0000
Bambaranuts	0	0	125	76	76	0.0000
OIL SEEDS & OIL NUTS	0	0	2,208	1,172	1,172	0.0000
Sunflower	0	0	1,977	1,098	1,098	0.0000
Simsim	0	0	0	0	0	0.0000
Groundnuts	0	0	56	68	68	0.0000
Soya Beans	0	0	176	6	6	0.0000
FRUITS & VEGETABLES	10,546	3,284	8,131	2,329	5,613	0.5851
Okra	156	55	18	9	63	0.8608
Radish	0		0		0	0.0000
Turmeric	0		0		0	0.0000
Onions	2,955	1,404	2,426	1,154	2,558	0.5489
Cabbage	1,205	413	836	297	710	0.5814
Tomatoes	2,557	994	1,894	510	1,504	0.6608
Spinnach	1,030	71	1,021	136	207	0.3434
Carrot	176	7	352	24	31	0.2326
Chillies	471	153	167	34	187	0.8185
Amaranths	1,995	188	1,417	166	353	0.5312
Total		28,395		137,761	166,156	0.1709

7.1 & 7.2e TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (ha) By Means of Soil Preparation and District Wet & Dry Season, Arusha

District	Soil Preparation							
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Monduli	3,123	12,452	12,138	20,369	2,661	2,608	17,922	35,430
Arumeru	6,573	8,185	40,112	45,151	18,690	10,488	65,376	63,824
Arusha	126	265	1,327	2,113	129	291	1,583	2,668
Karatu	4,126	5,975	16,925	19,120	4,133	3,116	25,184	28,211
Ngorongoro	107	43	7,419	6,770	9,146	4,284	16,671	11,097
Total	14,055	26,920	77,921	93,523	34,760	20,788	126,736	141,231
%		19		66		15		100

7.1 & 7.2f TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fertilizer Use and District for the 2002/03 Agriculture Year - Wet & Dry Season, Arusha

District	Fertilizer Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertilizer		No Fertilizer Applied		Total	
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area
Monduli	4,162	7,963	245	269	0	.	13,515	27,197	17,922	35,430
Arumeru	18,661	18,070	366	301	9,466	6,752	36,995	38,742	65,488	63,865
Arusha	537	1,287	0	.	94	95	952	1,286	1,583	2,668
Karatu	9,453	11,139	395	479	2,205	2,151	13,132	14,443	25,184	28,211
Ngorongoro	967	914	120	74	0	.	15,584	10,142	16,671	11,130
Total	33,779	39,374	1,126	1,123	11,765	8,998	80,179	91,810	126,848	141,304

7.1 & 7.2g TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Irrigation Use and District during Wet Season, 2002/03 Agriculture Year

District	Irrigation Use						% of Area Planted Under Irrigation
	Households Using Irrigation		Households not Using Irrigation		Total		
	Number of Household	Planted Area (Ha)	Number of Household	Planted Area (Ha)	Number of Household	Planted Area (Ha)	
Monduli	1,167	1,102	16,755	34,327	17,922	35,430	3.11
Arumeru	11,758	11,515	53,730	52,350	65,488	63,865	18.03
Arusha	192	251	1,391	2,417	1,583	2,668	9.41
Karatu	1,860	1,247	23,324	26,964	25,184	28,211	4.42
Ngorongoro	1,555	968	15,116	10,162	16,671	11,130	8.70
Total	16,532	15,084	110,316	126,221	126,848	141,304	10.67

7.1 & 7.2h TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Insecticide Use and District for the 2002/03 Agriculture Year - Wet & Dry Season.

District	Insecticide Use						% of Planted Area Using Insecticides
	Households Using Insecticides		Households Not Using Insecticides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	2,813	9,034	15,109	26,395	17,922	35,430	25.50
Arumeru	9,610	9,465	55,878	54,400	65,488	63,865	14.82
Arusha	36	110	1,547	2,558	1,583	2,668	4.13
Karatu	5,204	7,162	19,980	21,050	25,184	28,211	25.39
Ngorongoro	914	422	15,757	10,709	16,671	11,130	3.79
Total	18,578	26,193	108,271	115,111	126,848	141,304	18.54

7.1 & 7.2i TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Herbicide Use and District for the 2002/03 Agriculture Year - Wet & Dry Season.

District	Herbicide Use						% of Planted Area Using Herbicides
	Households Using Herbicide		Households Not Using Herbicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	105	456	17,817	34,974	17,922	35,430	1.29
Arumeru	2,256	2,527	63,233	61,338	65,488	63,865	3.96
Arusha	0	0	1,583	2,668	1,583	2,668	0.00
Karatu	1,447	2,306	23,737	25,905	25,184	28,211	8.18
Ngorongoro	116	35	16,555	11,095	16,671	11,130	0.32
Total	3,924	5,325	122,924	135,980	126,848	141,304	3.77
%	3.1	3.8	96.9	96.2	100	100	

7.1 & 7.2j TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fungicides Use and District for the 2002/03 Agriculture Year - Wet & Dry Season.

District	Fungicide Use						% of Planted Area Using Fungicides
	Households Using Fungicide		Households Not Using Fungicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	493	1,982	17,429	33,447	17,922	35,430	5.59
Arumeru	4,188	3,945	61,300	59,920	65,488	63,865	6.18
Arusha	36	110	1,547	2,558	1,583	2,668	4.13
Karatu	1,323	2,039	23,860	26,172	25,184	28,211	7.23
Ngorongoro	176	60	16,495	11,071	16,671	11,130	0.54
Total	6,218	8,136	120,631	133,168	126,848	141,304	5.76

7.1 & 7.2k TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Improved Seed Use and District for the 2002/03 Agriculture Year - Wet & Dry Season.

District	Improved Seed Use						% of Planted Area Using Improved Seeds
	Households Using Improved Seed		Households Not Using Improved Seed		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	2,765	6,403	15,157	29,027	17,922	35,430	18.07
Arumeru	22,591	18,139	42,785	45,685	65,376	63,824	28.42
Arusha	510	674	1,073	1,995	1,583	2,668	25.25
Karatu	7,623	9,352	17,561	18,860	25,184	28,211	33.15
Ngorongoro	2,842	2,459	13,829	8,639	16,671	11,097	22.15
Total	36,330	37,026	90,406	104,205	126,736	141,231	26.22

**ANNUAL CROP & VEGETABLES PRODUCTION
DRY SEASON**

7.1a ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Households and Planted Area by Means Used for Soil Preparation and District - DRY SEASON, Arusha Region.

District	Soil Preparation							
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Monduli	345	416	1,464	1,195	1,265	508	3,074	2,118
Arumeru	1,535	1,094	16,915	10,906	15,857	7,101	34,307	19,101
Arusha	51	57	241	197	0		292	254
Karatu	1,879	2,001	6,027	4,366	1,381	438	9,287	6,804
Ngorongoro	0		238	117	824	276	1,062	393
Total	3,809	3,567	24,885	16,780	19,327	8,324	48,021	28,671
%	8	12	52	59	40	29	100	100

7.1b ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Fertilizer Use and District during 2002/03 Agriculture Year - DRY SEASON, Arusha Region

District	Fertilizer Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertilizer		No Fertilizer Applied		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Monduli	636	308	48	19	0		2,391	1,792	3,074	2,118
Arumeru	13,920	6,160	344	159	6,176	4,751	13,867	8,031	34,307	19,101
Arusha	259	241	0		14	6	18	7	292	254
Karatu	2,662	1,543	56	91	1,620	1,725	4,949	3,446	9,287	6,804
Ngorongoro	62	6	0		62	13	938	374	1,062	393
Total	17,538	8,258	448	269	7,873	6,494	22,162	13,650	48,021	28,671
%	37	29	1	1	16	23	46	48	100	100

7.1c ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Irrigation Use and District during Dry Season, 2002/03 Agriculture Year, Arusha Region

District	Irrigation Use						% of planted area under irrigation in dry season
	Households Using Irrigation		Households Not Using Irrigation		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	783	616	2,291	1,502	3,074	2,118	29
Arumeru	10,083	6,378	24,224	12,723	34,307	19,101	33
Arusha	253	161	38	93	292	254	63
Karatu	2,062	1,765	7,225	5,040	9,287	6,804	26
Ngorongoro	294	164	768	229	1,062	393	42
Total	13,475	9,085	34,546	19,587	48,021	28,671	32
%	28	32	72	68	100	100	

7.1d ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Insecticide Use and District for the 2002/03 Agriculture Year - Dry Season.

	Insecticide Use						% of Planted Area Using Insecticides
	Household Using Insecticides		Households Not Using Insecticides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	411	300	2,663	1,819	3,074	2,118	14.15
Arumeru	6,376	3,620	27,931	15,481	34,307	19,101	18.95
Arusha	54	51	237	203	292	254	20.22
Karatu	2,407	2,251	6,880	4,553	9,287	6,804	33.09
Ngorongoro	118	57	944	336	1,062	393	14.45
Total	9,366	6,280	38,655	22,392	48,021	28,671	21.90

7.1e ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Herbicides Use and District for the 2002/03 Agriculture Year - Dry Season.

	Herbicide Use						% of Planted Area Using Herbicides
	Household Using Herbicides		Households Not Using Herbicides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	95	53	2,979	2,065	3,074	2,118	2.51
Arumeru	986	760	33,321	18,342	34,307	19,101	3.98
Arusha	36	44	255	210	292	254	17.34
Karatu	774	943	8,513	5,861	9,287	6,804	13.86
Ngorongoro	59	3	1,003	390	1,062	393	0.79
Total	1,951	1,803	46,070	26,868	48,021	28,671	6.29

7.1f ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fungicide Use and District for the 2002/03 Agriculture Year - Dry Season.

	Fungicide Use						% of Planted Area Using Fungicides
	Household Using Fungicides		Households Not Using Fungicides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	86	17	2,988	2,101	3,074	2,118	0.82
Arumeru	3,207	1,451	31,100	17,650	34,307	19,101	7.59
Arusha	54	51	237	203	292	254	20.22
Karatu	556	604	8,731	6,201	9,287	6,804	8.87
Ngorongoro	118	57	944	336	1,062	393	14.45
Total	4,021	2,180	44,000	26,491	48,021	28,671	7.60

7.1g ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Improved Seed Use and District During 2002/03 Crop Year - DRY SEASON

District	Improved Seed Use						% of Planted Area Using Improved Seed
	Households Using Improved Seed		Households Not Using Improved Seed		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Monduli	588	449	2,486	1,669	3,074	2,118	21.21
Arumeru	14,734	8,708	19,572	10,393	34,307	19,101	45.59
Arusha	235	125	56	130	292	254	48.97
Karatu	2,467	2,129	6,820	4,675	9,287	6,804	31.29
Ngorongoro	118	57	944	336	1,062	393	14.45
Total	18,142	11,468	29,879	17,203	48,021	28,671	40.00
%	38	40	62	60	100	100	

**ANNUAL CROP & VEGETABLES PRODUCTION
WET SEASON**

7.2a ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Households and Planted Area by Means Used for Soil Preparation and District - WET SEASON, Arusha Region.

District	Soil Preparation							
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Monduli	3,123	12,452	12,138	20,369	2,661	2,608	17,922	35,430
Arumeru	6,573	8,185	40,112	45,151	18,690	10,488	65,376	63,824
Arusha	126	265	1,327	2,113	129	291	1,583	2,668
Karatu	4,126	5,975	16,925	19,120	4,133	3,116	25,184	28,211
Ngorongoro	107	43	7,419	6,770	9,146	4,284	16,671	11,097
Total	14,055	26,920	77,921	93,523	34,760	20,788	126,736	141,231
%	11	19	61	66	27	15	100	100

7.2b ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Fertilizer Use and District during 2002/03 Agriculture Year - WET SEASON, Arusha Region

	Fertilizer Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertilizer		No Fertilizer Applied		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Monduli	4,162	7,963	245	269	0	0	13,515	27,197	17,922	35,430
Arumeru	18,661	18,070	366	301	9,466	6,752	36,995	38,742	65,488	63,865
Arusha	537	1,287	0	0	94	95	952	1,286	1,583	2,668
Karatu	9,453	11,139	395	479	2,205	2,151	13,132	14,443	25,184	28,211
Ngorongoro	967	914	120	74	0	0	15,584	10,142	16,671	11,130
Total	33,779	39,374	1,126	1,123	11,765	8,998	80,179	91,810	126,848	141,304

7.2c ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Irrigation Use and District during Wet Season, 2002/03 Agriculture Year, Arusha Region

District	Irrigation Use						% of planted area under irrigation in dry season
	Households Using Irrigation		Households Not Using Irrigation		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	1,167	1,102	16,755	34,327	17,922	35,430	3
Arumeru	11,758	11,515	53,730	52,350	65,488	63,865	18
Arusha	192	251	1,391	2,417	1,583	2,668	9
Karatu	1,860	1,247	23,324	26,964	25,184	28,211	4
Ngorongoro	1,555	968	15,116	10,162	16,671	11,130	9
Total	16,532	15,084	110,316	126,221	126,848	141,304	11
%	13	11	78	89	100	100	

7.2d ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Insecticide Use and District for the 2002/03 Agriculture Year - Wet Season.

District	Insecticide Use						% of Planted Area Using Insecticides
	Households Using Insecticides		Households Not Using Insecticides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	2,813	9,034	15,109	26,395	17,922	35,430	25.50
Arumeru	9,610	9,465	55,878	54,400	65,488	63,865	14.82
Arusha	36	110	1,547	2,558	1,583	2,668	4.13
Karatu	5,204	7,162	19,980	21,050	25,184	28,211	25.39
Ngorongoro	914	422	15,757	10,709	16,671	11,130	3.79
Total	18,578	26,193	108,271	115,111	126,848	141,304	18.54

7.2e ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Herbicide Use and District for the 2002/03 Agriculture Year - Wet Season.

District	Herbicide Use						% of Planted Area Using Herbicides
	Households Using Herbicide		Households Not Using Herbicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	105	456	17,817	34,974	17,922	35,430	1.29
Arumeru	2,256	2,527	63,233	61,338	65,488	63,865	3.96
Arusha	0	0	1,583	2,668	1,583	2,668	0.00
Karatu	1,447	2,306	23,737	25,905	25,184	28,211	8.18
Ngorongoro	116	35	16,555	11,095	16,671	11,130	0.32
Total	3,924	5,325	122,924	135,980	126,848	141,304	3.77
%	3.1	3.8	96.9	96.2	100	100	

7.2f ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fungicide Use and District for the 2002/03 Agriculture Year - WET SEASON

District	Fungicide Use						% of Planted Area Using Fungicides
	Households Using Fungicide		Households Not Using Fungicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Monduli	493	1,982	17,429	33,447	17,922	35,430	5.59
Arumeru	4,188	3,945	61,300	59,920	65,488	63,865	6.18
Arusha	36	110	1,547	2,558	1,583	2,668	4.13
Karatu	1,323	2,039	23,860	26,172	25,184	28,211	7.23
Ngorongoro	176	60	16,495	11,071	16,671	11,130	0.54
Total	6,218	8,136	120,631	133,168	126,848	141,304	5.76

7.2g ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Improved Seed Use and District During 2002/03 Crop Year - WET SEASON

District	Improved Seed Use						% of planted area under irrigation in dry season
	Households Using Improved Seed		Households Not Using Improved Seed		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Monduli	2,765	6,403	15,157	29,027	17,922	35,430	18.07
Arumeru	22,591	18,139	42,785	45,685	65,376	63,824	28.42
Arusha	510	674	1,073	1,995	1,583	2,668	25.25
Karatu	7,623	9,352	17,561	18,860	25,184	28,211	33.15
Ngorongoro	2,842	2,459	13,829	8,639	16,671	11,097	22.15
Total	36,330	37,026	90,406	104,205	126,736	141,231	26.22
%	29	26	71	74	100	100	

Table 7.2.9: Number of Agricultural Households, Area Planted (ha) and Quantity of Cowpeas Harvested (tons) by Season and District;2002/03 Agricultural Year

Cowpeas											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	67	14	5	0.395	681	183	0	0.000	197	5	0.027
Arumeru	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	59	24	4	0.148	342	43	21	0.495	67	25	0.372
Total	126	37	9	0.238	1,024	226	21	0.094	263	30	0.114

Table 7.2.10: Number of Agricultural Households, Area Planted (ha) and Quantity of Bambaranuts Harvested (tons) by Season and District;2002/03 Agricultural Year

Bambaranuts											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	125	76	42	0.560	76	42	0.560
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	125	76	42	0.560	76	42	0.560

Table 7.2.11: Number of Agricultural Households, Area Planted (ha) and Quantity of Chick peas Harvested (tons) by Season and District;2002/03 Agricultural Year

Chick peas											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	1,261	1,234	482	0.391	1,234	482	0.391
Arumeru	0	0	0	0.000	1,584	834	232	0.278	834	232	0.278
Arusha	0	0	0	0.000	100	75	115	1.520	75	115	1.520
Karatu	0	0	0	0.000	405	155	19	0.122	155	19	0.122
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	3,351	2,298	848	0.369	2,298	848	0.369

Table 7.2.12: Number of Agricultural Households, Area Planted (ha) and Quantity of Cassava Harvested (tons) by Season and District;2002/03 Agricultural Year

Cassava											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	141	46	17	0.372	46	17	0.372
Arumeru	257	10	17	1.668	935	90	576	6.425	100	593	5.944
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	235	33	65	1.973	33	65	1.973
Total	257	10	17	1.668	1,311	168	658	3.907	178	675	3.780

Table 7.2.13: Number of Agricultural Households, Area Planted (ha) and Quantity of Sweet potatoes Harvested (tons) by Season and District;2002/03 Agricultural Year

Sweet potatoes											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	56	6	0	0.000	6	0	0.000
Arumeru	177	36	35	0.988	173	17	10	0.593	53	46	0.858
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	118	36	99	2.782	0	0	0	0.000	36	99	2.782
Ngorongoro	59	12	41	3.458	331	28	101	3.578	40	142	3.543
Total	353	83	175	2.107	560	51	111	2.167	134	286	2.130

Table 7.2.14: Number of Agricultural Households, Area Planted (ha) and Quantity of Irish potatoes Harvested (tons) by Season and District;2002/03 Agricultural Year

Irish potatoes											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	#DIV/0!	86	14	9	0.618	14	9	0.618
Arumeru	704	214	1,352	6.323	1,791	792	807	1.018	1,006	2,158	2.145
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	367	56	94	1.693	1,329	202	454	2.251	257	548	2.130
Total	1,071	269	1,446	5.369	3,206	1,008	1,269	1.259	1,277	2,715	2.126

Table 7.2.15: Number of Agricultural Households, Area Planted (ha) and Quantity of Groundnuts Harvested (tons) by Season and District;2002/03 Agricultural Year

Groundnuts											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	56	68	0	0.000	68	0	0.000
Arumeru	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	56	68	0	0.000	68	0	0.000

Table 7.2.16: Number of Agricultural Households, Area Planted (ha) and Quantity of Sunflower Harvested (tons) by Season and District;2002/03 Agricultural Year

Sunflower											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	0	0	0	0.000	1,676	1,028	381	0.371	1,028	381	0.371
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	301	70	60	0.860	70	60	0.860
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	1,977	1,098	441	0.402	1,098	441	0.402

Table 7.2.17: Number of Agricultural Households, Area Planted (ha) and Quantity of Simsim Harvested (tons) by Season and District;2002/03 Agricultural Year

Simsim											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	0	0	0	0.000	0	0	0.000

Table 7.2.18: Number of Agricultural Households, Area Planted (ha) and Quantity of Soya beans Harvested (tons) by Season and District;2002/03 Agricultural Year

Soya beans											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	0	0	0	0.000	176	6	4	0.549	6	4	0.549
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	176	6	4	0.549	6	4	0.549

Table 7.2.19: Number of Agricultural Households, Area Planted (ha) and Quantity of Cabbage Harvested (tons) by Season and District;2002/03 Agricultural Year

Cabbage											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	1,146	397	1,884	4.752	777	291	900	3.090	688	2,784	4.048
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	59	16	15	0.922	59	6	15	2.470	22	29	1.342
Total	1,205	413	1,899	4.603	836	297	914	3.078	710	2,813	3.965

Table 7.2.20: Number of Agricultural Households, Area Planted (ha) and Quantity of Okra Harvested (tons) by Season and District;2002/03 Agricultural Year

Okra											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0	0	0	0.000
Arumeru	120	49	192	3.952	0	0	0	0	49	192	3.952
Arusha	36	6	4	0.618	18	9	2	0.206	15	5	0.371
Karatu	0	0	0	0.000	0	0	0	0	0	0	0.000
Ngorongoro	0	0	0	0.000	0	0	0	0	0	0	0.000
Total	156	55	196	3.592	18	9	2	0.206	63	198	3.121

Table 7.2.21: Number of Agricultural Households, Area Planted (ha) and Quantity of Radish Harvested (tons) by Season and District;2002/03 Agricultural Year

Radish											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	0	0	0	0.000	0	0	0.000

Table 7.2.22: Number of Agricultural Households, Area Planted (ha) and Quantity of Tumeric Harvested (tons) by Season and District;2002/03 Agricultural Year

Tumeric											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	95	19	8	0.395	19	8	0.395
Total	0	0	0	0.000	95	19	8	0.395	19	8	0.395

Table 7.2.23: Number of Agricultural Households, Area Planted (ha) and Quantity of Onions Harvested (tons) by Season and District;2002/03 Agricultural Year

Onions											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	0	0	0	0.000	0	0	0	0.000	0	0	0.000

Table 7.2.24: Number of Agricultural Households, Area Planted (ha) and Quantity of Tomatoes Harvested (tons) by Season and District;2002/03 Agricultural Year

Tomatoes											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	2,440	960	4,330	4.510	1,717	492	2,869	5.825	1,452	7,198	4.956
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	118	34	56	1.644	177	18	86	4.869	52	142	2.748
Total	2,557	994	4,385	0.000	1,894	510	2,955	5.792	1,504	7,340	4.881

Table 7.2.25: Number of Agricultural Households, Area Planted (ha) and Quantity of Spinach Harvested (tons) by Season and District;2002/03 Agricultural Year

Spinach											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	791	54	401	7.442	845	110	247	2.245	164	648	3.956
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	121	10	17	1.650	0	0	0	0.000	10	17	1.650
Ngorongoro	118	7	68	9.795	177	26	79	3.027	33	146	4.450
Total	1,030	71	486	6.837	1,021	136	325	2.395	207	811	3.920

Table 7.2.26: Number of Agricultural Households, Area Planted (ha) and Quantity of Carrot Harvested (tons) by Season and District;2002/03 Agricultural Year

Carrot											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	176	7	2	0.247	352	24	118	5.015	31	120	3.906
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	176	7	2	0.247	352	24	118	5.015	31	120	3.906

Table 7.2.27: Number of Agricultural Households, Area Planted (ha) and Quantity of Chillies Harvested (tons) by Season and District;2002/03 Agricultural Year

Chillies											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	471	153	1,337	8.742	167	34	54	1.606	187	1,391	7.447
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	471	153	1,337	8.742	167	34	54	1.606	187	1,391	7.447

Table 7.2.28: Number of Agricultural Households, Area Planted (ha) and Quantity of Amaranths Harvested (tons) by Season and District;2002/03 Agricultural Year

Amaranths											
District	Dry Season				Wet Season				Total		
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Monduli	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Arumeru	1,995	188	799	4.260	1,417	166	729	4.405	353	1,528	4.328
Arusha	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Karatu	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Ngorongoro	0	0	0	0.000	0	0	0	0.000	0	0	0.000
Total	1,995	188	799	4.260	1,417	166	729	4.405	353	1,528	4.328

PERMANENT CROPS

7.3.1 PERMANENT CROPS: Production of Permanent Crops by Crop Type and District - Arusha

District/Crop		Area planted (ha)	Area Harvested (ha)	Quantity Harvested (tons)	Yield (Kgs/ha)
Monduli	Pigeon Pea	137	34	0	0
	Coffee	124	24	8	326
	Banana	798	673	11,626	17,282
	Total	1,059	730	11,634	15,933
Arumeru	Pigeon Pea	1,794	1,142	566	496
	Coffee	5,633	4,992	3,079	617
	Sugarcane	31	31	441	14,087
	Mpesheni	0	0	0	0
	Banana	3,834	3,996	118,450	29,639
	Avocado	145	232	2,088	8,984
	Mango	55	23	1,271	55,261
	Pawpaw	649	51	372	7,241
	Orange	25	39	187	4,792
	Mandarine/Tangerine				0
	Guava	91	47	362	7,699
	Apples	1	0	26	0
	Pitches	19	19	70	3,614
	Lime/Lemon	9	3	48	15,272
Total	12,285	10,578	126,961	12,003	
Arusha	Banana	3	3	115	39,520
	Total	3	3	115	39,520
Karatu	Pigeon Pea	3,742	1,521	1,616	1,063
	Coffee	8	8	3	329
	Banana	218	161	202	1,252
	Mango		0	0	0
	Orange		0	4	0
	Guava	1	1	2	2,010
	Lime/Lemon		0	6	0
Total	3,969	1,691	1,832	1,084	
Ngorongoro	Banana	5	7	24	3,305
	Mango	12	12	12	988
	Orange	2	2		0
	Total	19	21	35	1,651
Total	Pigeon Pea	5,674	2,697	2,182	809
	Coffee	5,765	5,024	3,089	615
	Sugarcane	31	31	441	14,087
	Mpesheni				0
	Banana	4,857	4,840	130,416	26,945
	Avocado	145	232	2,088	8,984
	Mango	67	35	1,284	36,736
	Pawpaw	649	51	372	7,241
	Orange	28	41	191	4,608
	Mandarine/Tangerine				0
	Guava	92	48	364	7,593
	Apples	1	0	26	0
	Pitches	19	19	70	3,614
	Lime/Lemon	9	3	54	17,225
Total	17,336	13,023	140,577	10,795	

7.3.2 PERMANENT CROP: Area Planted by Crop Type - Arusha Region

Crop	Area Planted	%
Pigeon Pea	5,674	22.94
Banana	4,857	19.64
Guava	92	0.37
Mango	67	0.27
Sugarcane	31	0.13
Pawpaw	649	2.62
Grape	0	0.00
Rubber Vine Fruit	0	0.00
Orange	28	0.11
Lime/Lemon	9	0.03
Durian	0	0.00
Mandarine/Tangerine	0.0	0.00
Nutmeg	0	0.00
Total	24,734	100.00

7.3.3 PERMANENT CROPS: Area Planted with Pigeon peas by District

Pigeon peas					
District	Area Planted with Pigeon peas	Total Area Planted (Ha)	% of Total Area Planted	Households with Pigeon peas	Average Planted Area per Household
Monduli	137	37,548	0.4	192	0.7
Arumeru	1,794	82,966	2.2	2,897	0.6
Arusha	0	2,923	0.0	0	0.0
Karatu	3,742	35,016	10.7	4,424	0.8
Ngorongoro	0	11,523	0.0	0	0.0
Total	173	169,976	0.1	897	0.2

7.3.4 PERMANENT CROPS: Area planted with Banana by District

Banana					
District	Area Planted with Banana	Total Area Planted (Ha)	% of Total Area Planted	Households with Banana	Average Planted Area per Household
Monduli	798	37,548	2.1	1,246	0.6
Arumeru	3,834	82,966	4.6	20,719	0.2
Arusha	3	2,923	0.1	14	0.2
Karatu	218	35,016	0.6	1,157	0.2
Ngorongoro	5	11,523	0.0	59	0.1
Total	4,857	169,976	2.9	23,195	0.2

7.3.5 PERMANENT CROPS: Area planted with Mango by District

Mango					
District	Area Planted with Mango	Total Area Planted (Ha)	% of Total Area Planted	Households with Mango	Average Planted Area per Household
Monduli	0	37,548	0.00	0	0.00
Arumeru	55	82,966	0.07	995	0.00
Arusha	0	2,923	0.00	0	0.00
Karatu	0	35,016	0.00	0	0.00
Ngorongoro	12	11,523	0.10	59	0.20
Total	67	169,976	0.04	1054	0.06

7.3.6 PERMANENT CROPS: Area Planted with Guava by District

Guava					
District	Area Planted with Guava	Total Area Planted (Ha)	% of Total Area Planted	Households with Guava	Average Planted Area per Household
Monduli	0	37,548	0.00	0	0.00
Arumeru	91	82,966	0.11	1,012	0.09
Arusha	0	2,923	0.00	0	0.00
Karatu	1	35,016	0.00	74	0.01
Ngorongoro	0	11,523	0.00	0	0.00
Total	92	169,976	0.05	1,086	0.08

7.3.7 PERMANENT CROPS: Planted Area with Fertilizer by Fertilizer Type and Crop

Crop	Fertilizer Use				
	Mostly Farm Yard Manure	Mostly Compost	Mostly Inorganic Fertilizer	No Fertilizer Applied	Total
Rubber Vine Fruit	0	0	0	0	0
Pigeon Pea	2,808	16	49	2,801	5,674
Malay Apple	0	0	0	0	0
Sugarcane	7		24		31
Nutmeg	0	0	0	0	0
Banana	3,673	44	70	1,070	4,857
Mango	1	26		40	67
Pawpaw	20		3	625	649
Orange	3			24	28
Grape	0	0	0	0	0
Mandarine/Tangerine	0	0	0	0	0
Guava	82			10	92
Lime/Lemon	1			8	9
Durian	0	0	0	0	0
Rambutan	0	0	0	0	0
Total	6,595	86	147	4,579	11,406

**cont... Planted Area with Fertilizer by
Fertilizer Type and Crop**

Crop	Mostly Farm Yard Manure	Total	%
Pigeon Pea	2,808	5,674	49.5
Coffee	4,474	5,744	77.9
Sugarcane	7	31	21.9
Mpesheni	0	0	0.0
Banana	3,673	4,857	75.6
Avocado	76	145	52.6
Mango	1	67	1.1
Pawpaw	20	649	3.1
Orange	3	28	12.5
Mandarine/Tangerine	0	0	0.0
Guava	82	92	88.9
Apples	0	1	0.0
Pitches	3	19	14.8
Lime/Lemon	1	9	10.3
Total	11,148	17,314	64.4

**cont... Planted Area with Fertilizer by
Fertilizer Type and Crop**

Crop	Mostly Inorganic Fertilizer	Total	%
Pigeon Pea	49	5,674	1
Coffee	513	5,744	9
Sugarcane	24	31	78
Mpesheni	0	0	0
Banana	70	4,857	1
Avocado	1	145	1
Mango	0	67	0
Pawpaw	3	649	0
Orange	0	28	0
Mandarine/Tangerine	0	0	0
Guava	0	92	0
Apples	0	1	0
Pitches	0	19	0
Lime/Lemon	0	9	0
Total	661	17,314	4

**cont... Planted Area with Fertilizer by
Fertilizer Type and Crop**

Crop	Mostly Compost	Total	%
Pigeon Pea	16	5,674	0.28
Coffee	.	5,744	0.00
Sugarcane	.	31	0.00
Mpesheni	.	.	0.00
Banana	44	4,857	0.00
Avocado	.	145	0.00
Mango	26	67	39.64
Pawpaw	.	649	0.00
Orange	.	28	0.00
Mandarine/Tangerine	.	.	0.00
Guava	.	92	0.00
Apples	.	1	0.00
Pitches	.	19	0.00
Lime/Lemon	.	9	0.00
Total	86	17,314	0.50

AGROPROCESSING

8.1.1a: Number of Crop Growing Households Reported to have Processed Products by District; 2002/03 Agriculture Year

	Households That Processed Crops		Households That did not Process Crops		Total	
	Number	%	Number	%	Number	%
Monduli	12,022	46	13,974	54	25,996	100
Arumeru	56,271	74	19,751	26	76,022	100
Arusha	1,583	97	54	3	1,637	100
Karatu	23,294	85	4,047	15	27,341	100
Ngorongoro	13,990	59	9,871	41	23,860	100
Total	107,159	69	47,698	31	154,857	100

8.1.1b Number of Crop Growing Households by Method of Processing and District; 2002/03 Agricultural Year

District	Method of Processing					Total
	On Farm by Hand	On Farm by Machine	By Neighbour Machine	By Trader	Other	
Monduli	192	167	9,231	2,636	0	12,226
Arumeru	4,010	2,002	53,454	2,300	181	61,946
Arusha	54	0	378	1,112	0	1,545
Karatu	554	1,131	21,544	242	0	23,471
Ngorongoro	363	62	12,959	1,542	61	14,988
Total	5,174	3,363	97,566	7,831	242	114,176

8.1.1c AGRO PROCESSING: Number of Crop Growing Households Processing Crops During

Crop	Method of Processing						Total
	On Farm by Hand	On Farm by Machine	By Neighbour Machine	By Trader	On Large Scale Farm	Other	
Maize	3,733	3,301	89,163	7,004	0	242	103,443
Paddy	120	0	1,611	48	0	0	1,779
Sorghum	148	62	1,745	451	0	0	2,406
Bulrush Millet	0	0	0	0	0	0	0
Cassava	0	0	0	0	0	0	0
Beans	710	0	1,831	328	0	0	2,869
Cowpeas	0	0	0	0	0	0	0
Bambaranut	0	0	0	0	0	0	0
Groundnut	4,712	3,363	94,350	7,831	0	242	110,498

8.1.1d AGRO PROCESSING: Number of Crop Growing Households Reporting Processing of Farm Products Produced During 2002/03 Agricultural Year by Use of Product and Crop, Arusha Region

Crop	Product Use						Total
	Household / Human Consumption	Fuel for Cooking	Sale Only	Animal Consumption	Did Not Use	Other	
Maize	103,515	62	498	238	133	0	104,445
Paddy	1,779	0	0	0	0	0	1,779
Sorghum	2,332	0	74	0	0	0	2,406
Finger Millet	333	0	0	0	0	0	333
Wheat	534	0	72	0	0	0	605
Beans	2,869	0	0	0	0	0	2,869
Chick Peas	316	0	0	0	0	0	316
Sunflower	1,086	0	0	0	0	0	1,086
Tobacco	0	69	0	0	0	0	69
Coffee	198	0	0	0	0	0	198
Banana	975	0	0	0	0	0	975
Tomatoes	167	0	0	0	0	0	167
Total	114,105	131	643	238	133	0	115,249

8.1.1e AGRO PROCESSING: Number of Crop Growing Households Reporting Processing of Farm Products Produced During 2002/03 Agricultural Year by Location of Sale of Product and Crop, Arusha Region

Crop	Where Sold									Total
	Neighbours	Local Market / Trade Store	Secondary Market	Marketing Co-operative	Farmers Association	Large Scale Farm	Trader at Farm	Other	Did not Sell	
Maize	1,028	297	192	122	138	133	215	647	101,673	104,445
Paddy	56	0	0	0	0	0	56	0	1,667	1,779
Sorghum	74	0	0	0	0	0	0	0	2,332	2,406
Finger Millet	0	0	0	0	0	0	0	0	333	333
Wheat	76	72	0	72	0	0	0	0	386	605
Beans	0	0	0	0	0	0	0	0	2,869	2,869
Chick Peas	0	0	0	0	0	0	0	0	316	316
Sunflower	0	0	0	0	0	0	0	0	1,086	1,086
Tobacco	0	0	69	0	0	0	0	0	0	69
Coffee	0	0	0	0	0	0	0	0	198	198
Banana	0	0	0	0	0	0	0	0	975	975
Tomatoes	0	0	0	0	0	0	0	0	167	167
Total	1,234	369	260	194	138	133	271	647	112,003	115,249

8.1.1f AGRO PROCESSING: Number of Crop Growing Households By Main Product and District During 2002/03 Agriculture Year, Arusha Region

District	Main Product						Total
	Flour / Meal	Grain	Oil	Juice	Fiber	Other	
Monduli	11,794	228	0	0	0	0	12,022
Arumeru	51,196	4,454	620	0	0	0	56,271
Arusha	1,547	36	0	0	0	0	1,583
Karatu	22,045	1,173	76	0	0	0	23,294
Ngorongoro	13,810	180	0	0	0	0	13,990
Total	100,391	6,072	696	0	0	0	107,159

8.1.1g AGRO PROCESSING: Number of Crop Growing Households By Use of Primary Processed Product and District During 2002/03 Agriculture Year, Arusha Region

District	Product Use					Total
	Household / Human Consumption	Fuel for Cooking	Sale Only	Animal Consumption	Did Not Use	
Monduli	12,022	0	0	0	0	12,022
Arumeru	55,709	0	385	177	0	56,271
Arusha	1,545	0	38	0	0	1,583
Karatu	23,082	0	74	61	77	23,294
Ngorongoro	13,871	62	0	0	56	13,990
Total	106,229	62	498	238	133	107,159

8.1.1h AGRO PROCESSING: Number of Crop Growing Households By Where Product Sold and District During 2002/03 Agriculture Year, Arusha Region

District	Where Sold									
	Neighbours	Local Market / Trade Store	Secondary Market	Marketing Co-operative	Farmers Association	Large Scale Farm	Trader at Farm	Other	Did not Sell	Total
Monduli	101	69	0	0	0	0	0	0	11,852	12,022
Arumeru	188	0	0	0	0	0	177	0	55,906	56,271
Arusha	56	56	192	0	0	0	38	0	1,240	1,583
Karatu	261	67	0	0	77	133	56	57	22,643	23,294
Ngorongoro	477	104	0	122	62	0	0	589	12,635	13,990
Total	1,084	297	192	122	138	133	271	647	104,276	107,159

8.1.1i AGRO PROCESSING: Number of Crop Growing Households By type of By-Product and District During 2002/03 Agriculture Year, Arusha Region

District	By Product										
	Bran	Cake	Husk	Juice	Fiber	Pulp	Oil	Shell	No by-product	Other	Total
Monduli	1,591	0	48	0	0	0	0	0	10,384	0	12,022
Arumeru	18,272	821	841	0	0	189	0	0	36,147	0	56,271
Arusha	410	18	0	0	0	0	0	0	1,155	0	1,583
Karatu	3,650	76	105	0	0	61	0	0	19,402	0	23,294
Ngorongoro	1,953	0	0	0	0	296	0	59	11,682	0	13,990
Total	25,877	915	994	0	0	545	0	59	78,770	0	107,159

MARKETING

10.1: Number of Crop Producing Households Reported to have Sold Agricultural Produce by District During 2002/03; Arusha Region

	Households that Sold		Households that Did not Sell		Total Number of households
	Number	%	Number	%	
Monduli	8,729	33.6	17,268	66.4	25,996
Arumeru	53,107	69.9	22,915	30.1	76,022
Arusha	859	52.4	779	47.6	1,637
Karatu	15,657	57.3	11,684	42.7	27,341
Ngorongoro	5,570	23.3	18,290	76.7	23,860
Total	83,922	54.2	70,936	45.8	154,857

10.2: Number of Households who Reported Main Reasons for Not Selling their Crops by District During 2002/03 Agricultural Year, Arusha Region

District	Main Reasons for Not Selling Crops								
	Price Too Low	Production Insufficient to Sell	Market Too Far	Farmers Association Problems	Co-operative Problems	Trade Union Problems	Government Regulatory Board Problems	Other	Total
Monduli	308	6312	0	0	0	0	67	3019	9707
Arumeru	1555	24087	199	0	0	193	112	1833	27980
Arusha	18	682	0	0	0	0	0	0	700
Karatu	426	12466	0	0	0	0	145	325	13362
Ngorongoro	249	10682	245	0	59	183	181	1284	12882
Total	2557	54229	444	0	59	375	505	6461	64631

10.3 Proportion of Households who Reported Main Reason for Not Selling Their Crops by District during 2002/03 Agricultural Year, Arusha Region

District	Main Reasons for Not Selling Crops								
	Price Too Low	Production Insufficient to Sell	Market Too Far	Farmers Association Problems	Co-operative Problems	Trade Union Problems	Government Regulatory Board Problems	Other	Total
Kondoa	3.18	65.03	0.00	0.00	0.00	0.00	0.69	31.11	100.00
Mpwapwa	5.56	86.09	0.71	0.00	0.00	0.69	0.40	6.55	100.00
Kongwa	2.59	97.41	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Dodoma Rural	3.19	93.30	0.00	0.00	0.00	0.00	1.09	2.43	100.00
Dodoma Urban	1.93	82.92	1.90	0.00	0.46	1.42	1.40	9.97	100.00
Total	3.96	83.91	0.69	0.00	0.09	0.58	0.78	10.00	100.00

IRRIGATION/EROSION CONTROL

**11.1 Number and Percent of Households Reporting use of irrigation during 2002/03
Agricultural year by District**

	Households Practicing Irrigation		Households not Practicing Irrigation		Total	
	Number of Household	%	Number of Household	%	Number of Household	%
Monduli	1,467	6	24,529	94	25,996	100
Arumeru	17,295	23	58,727	77	76,022	100
Arusha	253	15	1,384	85	1,637	100
Karatu	2,744	10	24,597	90	27,341	100
Ngorongoro	1,722	7	22,138	93	23,860	100
Total	23,481	15	131,376	85	154,857	100

11.2 IRRIGATION: Area (ha) of Irrigatable and NON irrigated land by district during 2002/03 agriculture year

District	Irrigatable Area (ha)	Irrigated Land (ha)	%
Monduli	1,408	1,408	100.0
Arumeru	18,448	14,100	76.4
Arusha	224	224	100.0
Karatu	3,164	2,883	91.1
Ngorongoro	1,163	938	80.7
Total	24,406	19,554	80.1

11.3: IRRIGATION: Number of Agriculture Households using irrigation by Source of Irrigation Water by districts during the 2002/03 agricultural Year

District	Source of Irrigation Water							Total
	River	Lake	Dam	Well	Borehole	Canal	Pipe water	
Monduli	82	0	0	0	0	1,385	0	1,467
Arumeru	9,422	0	0	0	0	7,676	197	17,295
Arusha	0	0	0	0	0	253	0	253
Karatu	1,895	0	0	61	0	789	0	2,744
Ngorongoro	646	0	0	59	0	1,018	0	1,722
Total	12,044	0	0	119	0	11,121	197	23,481

11.4: IRRIGATION: Number of Agriculture Households by Method used to obtain water and District during 2002/03 Agricultural Year

District	Method of Obtaining Water				Total
	Gravity	Hand Bucket	Hand Pump	Motor Pump	
Monduli	1,467	0	0	0	1,467
Arumeru	16,857	438	0	0	17,295
Arusha	253	0	0	0	253
Karatu	2,567	61	0	117	2,744
Ngorongoro	1,663	59	0	0	1,722
Total	22,807	557	0	117	23,481

11.5 IRRIGATION: Number of Agriculture Households by Method of Field Application of Irrigation Water and District for the 2002/03 Agricultural Year

District	Method of Application				Total
	Flood	Sprinkler	Water Hose	Bucket / Watering Can	
Monduli	1,467	0	0	0	1,467
Arumeru	16,705	152	0	438	17,295
Arusha	253	0	0	0	253
Karatu	2,744	0	0	0	2,744
Ngorongoro	1,544	0	0	178	1,722
Total	22,713	152	0	616	23,481

11.6: Number of Households with Erosion Control/Water Harvesting Facilities on their Land By District

District	Presence of Erosion Control/Water Harvesting Facilities				Number of Households
	Have Facility		Does Not Have Facility		
	Number	%	Number	%	
Monduli	3,144	12	22,853	88	25,996
Arumeru	16,739	22	59,283	78	76,022
Arusha	648	40	989	60	1,637
Karatu	7,374	27	19,967	73	27,341
Ngorongoro	1,466	6	22,394	94	23,860
Total	29,371	19	125,486	81	154,857

11.7 EROSION CONTROL: Number of Erosion Control/Water Harvesting Structures By Type and District as of 2002/03 Agricultural Year

District	Type of Erosion Control								Total
	Terraces	Erosion Control Bunds	Gabions / Sandbag	Vetiver Grass	Tree Belts	Water Harvesting Bunds	Drainage Ditches	Dam	
Monduli	683	7,770	161	0	0	5,875	904	0	15,393
Arumeru	1,634	44,184		2,479	34,489	37,615	6,052	120	126,573
Arusha	77	863	0	0	192	1,633	0	0	2,765
Karatu	2,577	23,869	0	144	1,144	7,890	505	0	36,130
Ngorongoro	1,518	2,273				587	2,882		7,260
Total	6,488	78,959	161	2,623	35,825	53,601	10,344	120	188,120

ACCESS TO FARM INPUTS

Table 12.1.1 ACCESS TO INPUTS: Number of Crop Growing Households Using Chemical Fertilizer by District, 2002/03 Agricultural Year

District	Using Chemical Fertilizer		NOT Using Chemical Fertilizer		Total Number of Crop growing households
	No of households	%	No of households	%	
Monduli	67	0.3	25,690	100.1	25,671
Arumeru	15,183	20.0	61,212	80.5	76,022
Arusha	126	7.7	1,588	97.0	1,637
Karatu	3,345	12.3	23,997	88.5	27,109
Ngorongoro	0	0.0	23,860	100.5	23,748
Total	18,720	12.1	136,347	88.4	154,187

Table 12.1.2 ACCESS TO INPUTS: Number of Crop Growing Households Using Farm Yard Manure by District during 2002/03 Agricultural Year

District	Using Farm Yard Manure		Not Using Farm Yard Manure		Total Number of Crop growing households
	No of households	%	No of households	%	
Monduli	4,672	18	21,700	85	25,671
Arumeru	42,440	56	33,544	44	76,022
Arusha	519	32	1,080	66	1,637
Karatu	12,141	45	15,200	56	27,109
Ngorongoro	1,259	5	22,841	96	23,748
Total	61,031	40	94,366	61	154,187

Table 12.1.3 ACCESS TO INPUTS: Number of Crop Growing Households Using COMPOST Manure by District during 2002/03 Agricultural Year

District	Using Compost		Not Using Compost		Total Number of Crop growing households
	No of households	%	No of households	%	
Monduli	423	1.6	25,521	99.4	25,671
Arumeru	2,130	2.8	73,821	97.1	76,022
Arusha	0	0.0	1,637	100.0	1,637
Karatu	455	1.7	27,011	99.6	27,109
Ngorongoro	0	0.0	23,860	100.5	23,748
Total	3,007	2.0	151,850	98.5	154,187

Table 12.1.4 ACCESS TO INPUTS: Number of Crop Growing Households Using Insecticide/Fungicides by District during 2002/03 Agricultural Year

District	Using Insecticides/Fungicide		Not Using Insecticide/Fungi		Total Number of Crop growing households
	No of households	%	No of households	%	
Monduli	2,262	9	23,904	93	25,671
Arumeru	17,279	23	58,743	77	76,022
Arusha	18	1	1,581	97	1,637
Karatu	5,719	21	21,478	79	27,109
Ngorongoro	969	4	22,832	96	23,748
Total	26,246	17	128,539	83	154,187

Table 12.1.5 ACCESS TO INPUTS: Number of Crop Growing Households Using Herbicides by District during 2002/03 Agricultural Year

District	Using Herbicides		Not Using Herbicides		Total Number of Crop growing households
	No of households	%	No of households	%	
Monduli	72	0	25,924	101	25,671
Arumeru	3,493	5	72,528	95	76,022
Arusha	0	0	1,637	100	1,637
Karatu	2,208	8	25,278	93	27,109
Ngorongoro	0	0	23,860	100	23,748
Total	5,773	4	149,228	97	154,187

Table 12.1.6 ACCESS TO INPUTS: Number of Crop Growing Households using Improved Seeds by District during 2002/03 Agricultural Year

District	Using Improved Seeds		Not Using Improved Seeds		Total Number of Crop growing households
	No of households	%	No of households	%	
Monduli	2,938	11	22,934	89	25,671
Arumeru	21,473	28	54,221	71	76,022
Arusha	397	24	1,241	76	1,637
Karatu	7,963	29	19,255	71	27,109
Ngorongoro	2,773	12	20,967	88	23,748
Total	35,543	23	118,618	77	154,187

Table 12.1.7 ACCESS TO INPUTS: Number of Agricultural Households by Source of Chemical Fertilizer and District, 2002/03 Agricultural Year

District	Local Market / Trade Store		Locally Produced by Household		Neighbour		Not applicable		Total
	Number	%	Number	%	Number	%	Number	%	
Monduli	67	0.3	0	0.0	0	0.0	25,690	99.7	25,757
Arumeru	14,366	18.9	187	0.2	187	0.2	61,212	80.6	75,951
Arusha	126	7.4	0	0.0	0	0.0	1,588	92.6	1,714
Karatu	3,021	11.2	0	0.0	0	0.0	23,997	88.8	27,018
Ngorongoro	0	0.0	0	0.0	0	0.0	23,860	100.0	23,860
Total	17,580	11.4	187	0.1	187	0.1	136,347	88.4	154,300

Table 12.1.8 ACCESS TO INPUTS: Number of Agricultural Households by Source of Farm Yard Manure and District, 2002/03 Agricultural Year

District	Co-operative		Local Farmers Group		Local Market / Trade Store		Secondary Market		Development Project		Crop Buyers	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Monduli	0	0.0	0	0.0	85	0.3	0	0.0	0	0.0	0	0.0
Arumeru	176	0.2	173	0.2	865	1.1	167	0.2	0	0.2	0	0.3
Arusha	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Karatu	0	0.0	0	0.0	198	0.7	0	0.0	0	0.2	0	0.0
Ngorongoro	0	0.0	0	0.0	121	0.5	0	0.0	0	0.3	0	0.0
Total	176	0.1	173	0.1	1,269	0.8	167	0.1	0	0.1	0	0.0

cont.....Table 12.1.8 ACCESS TO INPUTS: Number of Agricultural Households by Source of Farm Yard Manure and District, 2002/03 Agricultural Year

District	Large Scale Farm		Locally Produced by Household		Neighbour		Other		Not applicable		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	0	0.0	4,176	15.8	411	1.6	0	0.0	21,700	82.3	26,372
Arumeru	0	0.0	36,248	47.7	4,811	6.3	0	0.0	33,544	44.1	75,984
Arusha	0	0.0	519	32.4	0	0.0	0	0.0	1,080	67.6	1,599
Karatu	0	0.0	9,973	36.5	1,594	5.8	375	1.4	15,200	55.6	27,341
Ngorongoro	59	0.2	778	3.2	302	1.3	0	0.0	22,841	94.8	24,100
Total	59	0.0	51,694	33.3	7,118	4.6	375	0.2	94,366	60.7	155,397

Table 12.1.9 ACCESS TO INPUTS: Number of Agricultural Households and Source of COMPOST Manure by District, 2002/03 Agricultural Year

District	Co-operative		Crop Buyers		Locally Produced by Household		Neighbour		Not applicable		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	0	0.0	0	0.0	423	1.6	0	0.0	25,521	98.4	25,944
Arumeru	0	0.0	0	0.0	2,130	2.8	0	0.0	73,821	97.2	75,951
Arusha	0	0.0	0	0.0	0	0.0	0	0.0	1,637	100.0	1,637
Karatu	0	0.0	0	0.0	455	1.7	0	0.0	27,011	98.3	27,465
Ngorongoro	0	0.0	0	0.0	0	0.0	0	0.0	23,860	100.0	23,860
Total	0	0.0	0	0.0	3,007	1.9	0	0.0	151,850	98.1	154,857

Table 12.1.10 ACCESS TO INPUTS: Number of Agricultural Households and Source of Insecticides/Fungicides by District, 2002/03 Agricultural Year

District	Local Market / Trade Store		Secondary Market		Development Project		Neighbour		Not applicable		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	72	0.3	0	0.0	0	0.0	0	0.0	23,904	99.7	23,976
Arumeru	373	0.6	0	0.0	0	0.0	65	0.1	58,743	99.3	59,181
Arusha	0	0.0	0	0.0	0	0.0	0	0.0	1,581	100.0	1,581
Karatu	348	1.6	0	0.0	0	0.0	0	0.0	21,478	98.4	21,827
Ngorongoro	0	0.0	0	0.0	0	0.0	0	0.0	22,832	100.0	22,832
Total	794	0.6	0	0.0	0	0.0	65	0.1	128,539	99.3	129,398

Table 12.1.11 ACCESS TO INPUTS: Number of Agricultural Households by Source of Herbicides and District, 2002/03 Agricultural Year

District	Local Market / Trade Store		Neighbour		Not applicable		Total
	Number	%	Number	%	Number	%	
Monduli	72	0.3	0	0.0	25,924	99.7	25,995
Arumeru	3,242	4.3	0	0.0	72,528	95.7	75,771
Arusha	0	0.0	0	0.0	1,637	100.0	1,637
Karatu	1,850	6.8	72	0.3	25,278	92.9	27,200
Ngorongoro	0	0.0	0	0.0	23,860	100.0	23,860
Total	5,164	3.3	72	0.0	149,228	96.6	154,464

12.1.12 ACCESS TO INPUTS: Number of Agricultural Households Source of Improved Seeds by District, 2002/03 Agricultural Year

District	Local Farmers Group		Local Market / Trade Store		Secondary Market		Development Project		Crop Buyers		Large Scale Farm		Locally Produced by Household		Neighbour		Not applicable		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	0	0.0	2,852	11.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	22,934	88.9	25,786
Arumeru	382	0.5	17,526	23.2	0	0.0	0	0.0	0	0.0	1,951	2.6	0	0.0	1,615	2.1	54,221	71.6	75,695
Arusha	0	0.0	397	24.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1,241	75.8	1,637
Karatu	236	0.9	6,574	24.4	0	0.0	0	0.0	62	0.2	62	0.2	692	2.6	56	0.2	19,255	71.5	26,937
Ngorongoro	62	0.3	2,464	10.4	0	0.0	124	0.5	0	0.0	0	0.0	0	0.0	122	0.5	20,967	88.3	23,740
Total	680	0.4	29,813	19.4	0	0.0	124	0.1	62	0.0	2,013	1.3	692	0.4	1,793	1.2	118,618	77.1	153,795

12.1.13 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Chemical Fertilizer by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total Number
	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	0	0	0	0	0	0	0	0	67	100	67
Arumeru	3,041	20	2,071	14	8,077	53	1,139	8	855	6	15,183
Arusha	14	11	0	0	69	55	43	34	0	0	126
Karatu	605	18	460	14	675	20	473	14	1,131	34	3,345
Total	3,661	20	2,531	14	8,821	47	1,655	9	2,052	11	18,720

12.1.14 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Farm Yard Manure by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	4,463	96	210	4	0	0	0	0	0	0	4,672
Arumeru	39,489	93	1,843	4	593	1	374	1	141	0	42,440
Arusha	519	100	0	0	0	0	0	0	0	0	519
Karatu	11,310	93	420	3	334	3	76	1	0	0	12,141
Ngorongoro	1,138	90	58	5	0	0	62	5	0	0	1,259
Total	56,919	93	2,532	4	927	2	512	1	141	0	61,031

12.1.15 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of COMPOST Manure by District, 2002/03 Agricultural Year

District	Less than 1 km		20 km and Above		Total Number
	Number	%	Number	%	
Monduli	423	100	0	0	423
Arumeru	1,978	93	152	7	2,130
Karatu	455	100	0	0	455
Total	2,855	95	152	5	3,007

12.1.16 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Improved Seeds by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total Number
	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	256	9	479	16	223	8	217	7	1,763	60	2,938
Arumeru	2,837	13	1,826	9	12,728	59	1,753	8	2,329	11	21,473
Arusha	61	15	18	5	217	55	100	25	0	0	397
Karatu	1,864	23	1,363	17	1,883	24	829	10	2,023	25	7,963
Ngorongoro	350	13	0	0	235	8	368	13	1,821	66	2,773
Total	5,369	15	3,686	10	15,286	43	3,267	9	7,936	22	35,543

12.1.17 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Insecticide/Fungicides by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total Number
	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	154	7	455	20	265	12	36	2	1,352	60	2,262
Arumeru	2,999	17	2,045	12	9,813	57	928	5	1,494	9	17,279
Arusha	0	0	18	100	0	0	0	0	0	0	18
Karatu	1,004	18	557	10	1,890	33	576	10	1,692	30	5,719
Ngorongoro	0	0	56	6	0	0	117	12	796	82	969
Total	4,157	16	3,132	12	11,968	46	1,657	6	5,334	20	26,246

Table 12.1.24 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Chemical Fertilizer by District, 2002/03 Agricultural Year

District	Excellent		Good		Average		Total
	Number	%	Number	%	Number	%	
Monduli	0	0	67	100	0	0	67
Arumeru	6,678	44	6,386	43	1,943	13	15,007
Arusha	0	0	126	100	0	0	126
Karatu	747	23	1,881	57	649	20	3,277
Total	7,424	40	8,460	46	2,592	14	18,477

12.1.25 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Farm Yard Manure by District, 2002/03 Agricultural Year

District	Excellent		Good		Average		Poor		Does not Work		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	1,989	43	2,389	51	294	6	0	0	0	0	4,672
Arumeru	15,822	37	23,909	56	2,597	6	0	0	112	0	42,440
Arusha	195	38	285	55	38	7	0	0	0	0	519
Karatu	3,881	32	5,885	48	2,374	20	0	0	0	0	12,141
Ngorongoro	421	33	540	43	298	24	0	0	0	0	1,259
Total	22,308	37	33,009	54	5,602	9	0	0	112	0	61,031

12.1.26 ACCESS TO INPUTS: Number of Agricultural Households and Quality of COMPOST Manure by District, 2002/03

District	Excellent		Good		Average		Poor		Total
	Number	%	Number	%	Number	%	Number	%	
Monduli	253	60	170	40	0	0	0	0	423
Arumeru	905	42	670	31	366	17	189	9	2,130
Karatu	112	25	280	62	62	14	0	0	455
Total	1,270	42	1,120	37	428	14	189	6	3,007

12.1.31 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Farm Yard Manure Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Next Year Farm Yard Manure		Agricultural Households With NO Plan to use Next Year Farm Yard Manure		Total
	Number	%	Number	%	
Monduli	9,669	37	16,703	63	26,372
Arumeru	38,783	51	37,201	49	75,984
Arusha	1,191	74	409	26	1,599
Karatu	11,409	42	15,933	58	27,341
Ngorongoro	2,696	11	21,404	89	24,100
Total	63,747	41	91,649	59	155,397

12.1.32 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use COMPOST Manure Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use COMPOST Manure Next Year		Agricultural Households With NO Plan to use COMPOST Manure Next Year		Total
	Number	%	Number	%	
Monduli	4,102	16	21,841	84	25,944
Arumeru	5,424	7	70,526	93	75,951
Arusha	153	9	1,484	91	1,637
Karatu	1,199	4	26,267	96	27,465
Ngorongoro	411	2	23,449	98	23,860
Total	11,290	7	143,567	93	154,857

12.1.33 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Insecticides/Fungicides Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Pesticides/Fungicides Next Year		Agricultural Households With NO Plan to use Pesticides/Fungicides Next Year		Total
	Number	%	Number	%	
Monduli	5,840	22	20,326	78	26,166
Arumeru	20,603	27	55,419	73	76,022
Arusha	363	23	1,236	77	1,599
Karatu	5,993	22	21,205	78	27,197
Ngorongoro	1,809	8	21,992	92	23,801
Total	34,607	22	120,178	78	154,785

12.1.34 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Herbicides Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Herbicides Next Year		Agricultural Households With NO Plan to use Herbicides Next Year		Total
	Number	%	Number	%	
Monduli	3,618	14	22,377	86	25,995
Arumeru	8,110	11	67,911	89	76,022
Arusha	192	12	1,446	88	1,637
Karatu	2,433	9	25,052	91	27,486
Ngorongoro	333	1	23,528	99	23,860
Total	14,686	9	140,315	91	155,001

Table 12.1.35 ACCESS TO INPUTS: Number of Agricultural Households with Plan to Use Improved Seeds Next Year by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Improved Seeds Next Year		Agricultural Households With NO Plan to use Improved Seeds Next Year		Total
	Number	%	Number	%	
Monduli	9,366	36	16,506	64	25,872
Arumeru	28,640	38	47,055	62	75,695
Arusha	1,066	65	571	35	1,637
Karatu	9,083	33	18,135	67	27,218
Ngorongoro	5,297	22	18,443	78	23,740
Total	53,451	35	100,710	65	154,161

AGRICULTURE CREDIT

13.1a AGRICULTURE CREDIT: Number of Agriculture Households receiving Credit by sex of household head and District During the 2002/03 Agriculture Year

District	Male		Female		Total
	Number	%	Number	%	
Monduli	158	100	0	0	158
Arumeru	112	50	112	50	225
Ngorongoro	0	0	62	100	62
Total	270	61	174	39	444

13.1b AGRICULTURE CREDIT: Number of Households Receiving Credit By Main Source of Credit and District; 2002/03 Agriculture Year.

District	Source of Credit				Total
	Family, Friend and Relative	Commercial Bank	Saving & Credit Society	Religious Organisation / NGO / Project	
Monduli	0	0	0	0	0
Arumeru	112	0	0	0	112
Ngorongoro	0	0	0	62	62
Total	112	0	0	62	174

13.2a AGRICULTURE CREDIT: Number of Households Reporting the Main reasons for Not Using Credit by District During the 2002/03 Agriculture Year

District	Not needed	Not available	Did not want to go into debt	Interest rate/cost too high	Did not know how to get credit	Difficult bureaucracy procedure	Credit granted too late	Other	Don't know about credit	Total
Monduli	3,498	4,568	2,827	333	10,292	318	48	115	3,841	25,839
Arumeru	6,740	2,941	9,688	4,154	34,897	2,471	199	469	14,239	75,797
Arusha	18	451	192	18	383	0	0	0	575	1,637
Karatu	3,072	2,284	2,686	1,177	12,914	137	0	0	5,070	27,341
Ngorongoro	3,747	631	456	111	9,245	123	118	181	9,187	23,798
Total	17,075	10,875	15,848	5,793	67,732	3,049	365	765	32,913	154,413

13.2b AGRICULTURE CREDIT: Number of Credits Received by Main Purpose of Credit and District During the 2002/03 Agriculture Year

District	Labour	Seeds	Agro-chemicals	Tools / Equipment	Livestock	Other	Total Credits
Monduli	0	86	0	158	0	0	243
Arumeru	112	112	112	0	0	112	449
Ngorongoro	0	0	0	0	0	62	62
Total Credits	112	198	112	158	0	174	754

TREE FARMING AND AGROFORESTRY

14.1 ON FARM TREE PLANTING: Number of Planted Trees By Species and District During the 2002/03 Agriculture Year, Dodoma Region

District	Senna Spp	Gravellis	Acacia Spp	Pinus Spp	Eucalyptus Spp	Cyprus Spp	Tectona Grandis
Monduli	89	1,458	30	0	50	0	0
Arumeru	638	4,555	116	17	94	2,316	0
Arusha	45	92	0	0	0	0	0
Karatu	301	2,319	6	0	2,699	3	5
Ngorongoro	0	31	0	0	0	0	0
Total	1,073	8,455	152	17	2,843	2,319	5
%	7	56	1	0	19	15	0

cont... ON FARM TREE PLANTING: Number of Planted Trees By Species and District During the 2002/03 Agriculture Year, Dodoma Region

District	Terminalia Catapa	Leucena Spp	Syzzygium Spp	Azadritachta Spp	Sesbania Spp	Moringa Spp	Trichilia Spp	Total
Monduli	0	0	0	9	0	0	0	1,636
Arumeru	2	22	4	86	0	0	0	7,850
Arusha	0	0	0	0	0	0	0	137
Karatu	0	0	4	34	0	0	50	5,421
Ngorongoro	0	0	0	0	0	0	0	31
Total	2	22	8	129	0	0	50	15,075
%	0	0	0	1	0	0	0	100

14.2 TREE FARMING: Number of Households with planted trees on their land and Number of Trees by Planting Location and District During the 2002/03 Agriculture Year, Arusha Region

	Mostly on Field / Plot Boundaries		Mostly Scattered in Field		Mostly in Plantation / Coppice		Total	
	Number of Households	Number of Trees	Number of Households	Number of Trees	Number of Households	Number of Trees	Number of Households	Number of Trees
Monduli	10	296	6	1,260	1	80	17	1,636
Arumeru	100	2,127	34	1,440	14	4,589	148	8,156
Arusha	7	137	0	0	0	0	7	137
Karatu	50	2,589	15	1,550	15	1,309	80	5,448
Ngorongoro	1	5	1	26	0	0	2	31
Total	168	5,154	56	4,276	30	5,978	254	15,408

14.3 ON FARM TREE PLANTING: Number of responses by main use of planted trees and District for the 2002/03 agriculture year, Arusha Region

District	Main Use							Total
	Planks / Timber	Poles	Charcoal	Fuel for Wood	Shade	Medicinal	Other	
Monduli	6	0	0	6	9	0	1	22
Arumeru	120	21	2	39	41	6	0	229
Arusha	3	1	0	3	2	0	0	9
Karatu	62	15	0	20	16	0	0	113
Ngorongoro	2	0	0	0	0	0	0	2
Total	193	37	2	68	68	6	1	375

14.4 TREE FARMING: Number of Agriculture Households Classified by Distance to Community Planted Forest (Km) By District During the 2002/03 Agriculture Year, Arusha Region

District	Distance to Community Planted Forest (km)						Total
	1-9	1-19	20-29	30-39	40-49	60+	
Monduli	115	0	0	0	0	0	115
Arumeru	5,785	881	709	518	173	0	8,066
Arusha	38	0	0	0	0	0	38
Karatu	5,918	66	75	0	0	0	6,058
Ngorongoro	62	249	62	0	0	0	374
Total	11,919	1,196	846	518	173	0	14,652
%	81	8	6	4	1	0	100

14.5 ON FARM TREE PLANTING: Number of responses by Second use of planted trees and District for the 2002/03 agriculture year, Arusha Region

District	Second Use							Total
	Planks / Timber	Poles	Charcoal	Fuel for Wood	Shade	Medicinal	Other	
Monduli	2	3	0	12	5	0	0	22
Arumeru	20	24	0	146	33	2	3	228
Arusha	0	5	0	3	1	0	0	9
Karatu	9	26	0	65	12	0	0	112
Ngorongoro	0	1	0	0	1	0	0	2
Total	31	59	0	226	52	2	3	373

CROP EXTENSION

15.1 CROP EXTENSION: Number of Agriculture Households Receiving Extension Messages by District During the 2002/03 Agriculture Year, Arusha Region

	Receiving Extension Advice		Receiving Extension Advice		Total Number of Households
	Number	%	Number	%	
Monduli	7,040	27	18,956	73	25,996
Arumeru	27,285	36	48,737	64	76,022
Arusha	816	50	821	50	1,637
Karatu	5,716	21	21,626	79	27,341
Ngorongoro	2,216	9	21,644	91	23,860
Total	43,073	28	111,784	72	154,857

15.2 CROP EXTENSION: Number of Households By Quality of Extension Services and District During the 2002/03 Agricultural Year, Arusha Region

	Very Good		Good		Average		Poor		No Good		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Monduli	783	11	2,848	40	3,076	44	333	5	0	0	7,040	100
Arumeru	8,353	31	16,121	60	2,269	8	350	1	0	0	27,094	100
Arusha	14	2	495	61	307	38	0	0	0	0	816	100
Karatu	1,184	21	3,287	58	1,244	22	0	0	0	0	5,716	100
Ngorongoro	404	18	1,641	74	111	5	60	3	0	0	2,216	100
Total	10,739	25	24,394	57	7,007	16	743	2	0	0	42,882	100

15.3 EXTENSION MESSAGES: Number of Agriculture Households By Source of Crop Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

	Government		NGO / Development Project		Large Scale Farm		Other		Not applicable		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Monduli	6,402	92	159	2	86	1	0	0	309	4	6,955	100
Arumeru	25,096	93	909	3	457	2	167	1	260	1	26,891	100
Arusha	816	100	0	0	0	0	0	0	0	0	816	100
Karatu	5,499	99	67	1	0	0	0	0	0	0	5,566	100
Ngorongoro	2,155	97	61	3	0	0	0	0	0	0	2,216	100
Total	39,969	94	1,196	3	543	1	167	0	569	1	42,445	100

15.4 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Plant Spacing by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Spacing						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Large Scale Farm	Other	Not applicable	Total		
Monduli	5,629	159	0	0	223	6,011	25,996	23.1
Arumeru	22,461	909	457	167	260	24,255	76,022	31.9
Arusha	510	0	0	0	0	510	1,637	31.1
Karatu	4,344	0	0	0	0	4,344	27,341	15.9
Ngorongoro	2,096	61	0	0	0	2,157	23,860	9.0
Total	35,039	1,129	457	167	484	37,276	154,857	24.1

15.5 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Agrochemicals by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Use of Agrochemicals							Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Monduli	2,090	0	0	72	0	784	2,946	25,996	11.3
Arumeru	15,194	719	112	457	167	1,235	17,885	76,022	23.5
Arusha	299	0	0	0	0	0	299	1,637	18.3
Karatu	2,293	0	0	0	0	228	2,521	27,341	9.2
Ngorongoro	1,179	120	0	0	0	120	1,418	23,860	5.9
Total	21,054	838	112	529	167	2,368	25,069	154,857	16.2

15.6 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Erosion Control by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Erosion Control							Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Monduli	4,200	73	0	0	72	699	5,043	25,996	19.4
Arumeru	15,492	1,177	112	112	0	908	17,802	76,022	23.4
Arusha	721	0	0	0	0	0	721	1,637	44.1
Karatu	3,595	73	0	0	0	137	3,805	27,341	13.9
Ngorongoro	1,313	177	0	0	0	58	1,548	23,860	6.5
Total	25,321	1,501	112	112	72	1,801	28,920	154,857	18.7

15.7 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Organic Fertilizer Use by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Organic Fertilizer Use							Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Monduli	4,523	73	0	86	0	148	4,830	25,996	19
Arumeru	20,886	1,311	232	305	167	112	23,015	76,022	30
Arusha	628	0	0	0	0	0	628	1,637	38
Karatu	3,915	140	0	0	0	137	4,193	27,341	15
Ngorongoro	964	58	0	0	0	240	1,261	23,860	5
Total	30,917	1,582	232	391	167	637	33,926	154,857	22

15.8 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Inorganic Fertilizer Use by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Inorganic Fertilizer Use							Total Number of Households	% of total number of households
	Government	NGO / Development	Cooperative	Large Scale	Other	Not applicable	Total		
Monduli	974	0	0	0	0	1,223	2,197	25,996	8
Arumeru	15,285	1,297	112	305	0	1,125	18,124	76,022	24
Arusha	162	0	0	0	0	0	162	1,637	10
Karatu	1,709	0	0	0	0	137	1,846	27,341	7
Ngorongoro	272	58	0	0	0	301	630	23,860	3
Total	18,402	1,354	112	305	0	2,786	22,960	154,857	15

15.9 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Improved Seeds by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Use of Improved Seed						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Large Scale Farm	Other	Not applicable	Total		
Monduli	4,022	159	86	0	313	4,579	25,996	18
Arumeru	17,978	1,616	518	167	1,418	22,169	76,022	29
Arusha	539	0	0	0	0	539	1,637	33
Karatu	3,950	73	0	0	76	4,099	27,341	15
Ngorongoro	1,501	0	0	0	0	1,501	23,860	6
Total	27,990	1,848	603	167	1,807	32,888	154,857	21

15.10 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Mechanization/LST by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Mechanisation / LST							Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Monduli	1,232	153	0	315	0	1,008	2,709	25,996	10
Arumeru	9,535	1,213	713	173	0	2,006	13,640	76,022	18
Arusha	146	0	0	0	0	0	146	1,637	9
Karatu	2,334	271	146	0	0	76	2,828	27,341	10
Ngorongoro	114	58	0	0	0	301	473	23,860	2
Total	13,362	1,695	859	488	0	3,392	19,796	154,857	13

15.11 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Irrigation Technology by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Irrigation Technology							Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Monduli	831	81	0	76	0	1,199	2,185	25,996	8
Arumeru	10,214	914	353	112	167	1,878	13,639	76,022	18
Arusha	268	0	0	0	0	0	268	1,637	16
Karatu	319	0	0	0	0	152	471	27,341	2
Ngorongoro	854	58	0	0	0	243	1,155	23,860	5
Total	12,485	1,052	353	188	167	3,472	17,716	154,857	11

15.12 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Crop Storage by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Crop Storage							Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total		
Monduli	3,131	170	0	0	72	404	3,777	25,996	15
Arumeru	17,266	1,311	112	112	191	1,476	20,468	76,022	27
Arusha	663	0	0	0	0	0	663	1,637	40
Karatu	3,134	49	0	0	0	286	3,469	27,341	13
Ngorongoro	1,516	58	0	0	0	125	1,699	23,860	7
Total	25,710	1,587	112	112	263	2,291	30,076	154,857	19

15.13 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Vermin Control by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Vermin Control						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Large Scale Farm	Other	Not applicable	Total		
Monduli	1,170	193	215	0	1,244	2,823	25,996	11
Arumeru	7,504	741	112	0	2,163	10,521	76,022	14
Arusha	250	0	0	0	0	250	1,637	15
Karatu	783	73	0	0	152	1,008	27,341	4
Ngorongoro	750	0	0	0	295	1,045	23,860	4
Total	10,456	1,008	328	0	3,855	15,647	154,857	10

15.14 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Agro-processing by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Agro-progressing						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Large Scale Farm	Other	Not applicable	Total		
Monduli	660	280	143	0	1,240	2,323	25,996	9
Arumeru	9,220	352	305	0	2,338	12,328	76,022	16
Arusha	725	0	38	0	0	764	1,637	47
Karatu	1,412	130	0	56	152	1,824	27,341	7
Ngorongoro	100	0	0	61	240	401	23,860	2
Total	12,118	762	487	117	3,970	17,639	154,857	11

15.15 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Agro-processing by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Agro-forestry						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Large Scale Farm	Other	Not applicable	Total		
Monduli	616	0	171	0	1,321	2,108	25,996	8
Arumeru	13,152	1,174	112	0	1,872	16,310	76,022	21
Arusha	384	0	0	0	0	384	1,637	23
Karatu	2,291	0	73	0	225	2,588	27,341	9
Ngorongoro	271	0	0	0	240	510	23,860	2
Total	16,712	1,174	356	0	3,657	98,960	154,857	64

15.16 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Bee keeping by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Beekeeping						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Large Scale Farm	Other	Not applicable	Total		
Monduli	735	0	0	0	1,072	1,807	25,996	7
Arumeru	5,378	582	0	0	3,040	9,001	76,022	12
Arusha	0	0	0	0	0	0	1,637	0
Karatu	67	0	0	0	152	219	27,341	1
Ngorongoro	116	0	0	0	295	412	23,860	2
Total	6,297	582	0	0	4,559	11,439	154,857	7

15.17 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Use of Fish Farming by Source of Extension Messages and District During the 2002/03 Agriculture Year, Arusha Region

District	Fish Farming						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Large Scale Farm	Other	Not applicable	Total		
Monduli	241	0	0	0	1,270	1,511	25,996	6
Arumeru	3,972	386	0	0	3,064	7,422	76,022	10
Arusha	0	0	0	0	0	0	1,637	0
Karatu	74	0	0	0	152	226	27,341	1
Ngorongoro	0	0	0	0	353	353	23,860	1
Total	4,287	386	0	0	4,839	9,513	154,857	6

15.18 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 1) During the 2002/03 Agriculture Year, Arusha Region

District	Spacing			Use of Agrochemicals			Erosion Control		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Monduli	5,788	4,801	83	2,005	1,036	52	4,430	2,674	60
Arumeru	24,173	21,786	90	16,151	13,015	81	17,065	8,922	52
Arusha	510	491	96	299	281	94	721	721	100
Karatu	4,417	3,201	72	2,293	951	41	3,729	2,625	70
Ngorongoro	2,157	1,923	89	1,236	523	42	1,371	930	68
Total	37,043	32,202	87	21,984	15,806	72	27,316	15,872	58

15.19 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 2) During the 2002/03 Agriculture Year, Arusha Region

District	Organic Fertilizer Use			Inorganic Fertilizer Use			Use of Improved Seed		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Monduli	4,682	2,602	56	720	81	11	4,517	2,193	49
Arumeru	22,903	20,183	88	16,413	10,879	66	20,999	13,836	66
Arusha	628	513	82	162	162	100	539	463	86
Karatu	4,117	3,369	82	1,770	383	22	4,096	2,076	51
Ngorongoro	1,079	357	33	152	48	32	1,558	1,003	64
Total	33,408	27,022	81	19,217	11,553	60	31,710	19,570	62

15.20 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 3) During the 2002/03 Agriculture Year, Arusha Region

District	Mechanisation / LST			Irrigation Technology			Crop Storage		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Monduli	1,625	771	47	911	602	66	3,301	2,915	88
Arumeru	11,070	4,361	39	11,365	6,232	55	19,368	15,623	81
Arusha	146	108	74	268	268	100	663	663	100
Karatu	2,676	1,895	71	319	173	54	3,317	2,442	74
Ngorongoro	114	52	46	859	318	37	1,574	1,027	65
Total	15,631	7,187	46	13,721	7,593	55	28,222	22,671	80

15.21 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 4) During the 2002/03 Agriculture Year, Arusha Region

District	Vermin Control			Agro-progressing			Agro-forestry		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Monduli	1,739	1,291	74	1,158	971	84	867	387	45
Arumeru	7,964	4,918	62	9,705	6,442	66	14,536	8,373	58
Arusha	250	250	100	764	764	100	384	230	60
Karatu	929	855	92	1,600	1,526	95	2,438	1,656	68
Ngorongoro	750	644	86	100	161	161	219	219	100
Total	11,632	7,959	68	13,327	9,864	74	18,443	10,866	59

15.22 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and District (Part 5) During the 2002/03 Agriculture Year, Arusha Region

District	Beekeeping			Fish Farming		
	Received	Adopted	%	Received	Adopted	%
Monduli	811	497	61	162	48	0
Arumeru	5,575	2,248	40	3,411	1,567	46
Arusha	0	0	0	0	0	0
Karatu	67	67	100	74	0	0
Ngorongoro	116	116	100	0	0	0
Total	6,569	2,929	45	3,647	1,615	44

ANIMAL CONTRIBUTION TO CROP PRODUCTION

17.1 ANIMAL CONTRIBUTION TO CROP PRODUCTION: Number of agriculture households using draft animal to cultivate land by District during 2002/03 agriculture year, Arusha Region

	Households Using Draft Animals		Household Not Using Draft Animals		Total households
	Number	%	Number	%	
Monduli	10,407	40	15,589	60	25,996
Arumeru	34,176	45	41,846	55	76,022
Arusha	1,404	86	233	14	1,637
Karatu	13,578	50	13,763	50	27,341
Ngorongoro	7,098	30	16,763	70	23,860
Total	66,663	43	88,194	57	154,857

17.2 ANIMAL CONTRIBUTION TO CROP PRODUCTION: Type of Draft By Number Owned, Used and Area Cultivated (Hectares) By District during 2002/03 agriculture year, Arusha Region

District	Type of Craft					
	Oxen			Bulls		
	Number Owned	Number Used	Area Cultivated (Hectares)	Number Owned	Number Used	Area Cultivated (Hectares)
Monduli	20,017	37,877	15,621	354	334	81
Arumeru	40,099	97,168	36,563	966	1,363	421
Arusha	2,487	4,509	2,312	230	307	0
Karatu	23,433	50,371	14,359	1,048	2,558	886
Ngorongoro	18,599	21,886	5,974	3,422	356	179
Total	104,635	211,812	74,829	6,020	4,919	1,567

cont... ANIMAL CONTRIBUTION TO CROP PRODUCTION: Type of Draft By Number Owned, Used and Area Cultivated (Hectares) By District during 2002/03 agriculture year, Arusha Region

District	Type of Craft								
	Cows			Donkeys			Total		
	Number Owned	Number Used	Area Cultivated (Hectares)	Number Owned	Number Used	Area Cultivated (Hectares)	Number Owned	Number Used	Area Cultivated (Hectares)
Monduli	3,317	0	0	6,975	3,133	1,115	30,664	41,344	16,818
Arumeru	0	0	0	2,348	1,511	803	43,413	100,042	37,788
Arusha	.	.	.	38	0	0	2,756	4,816	2,312
Karatu	0	0	0	0	73	30	24,481	53,003	15,274
Ngorongoro	15,377	0	0	1,846	491	74	39,244	22,733	6,227
Total	18,694	0	0	11,208	5,208	2,022	140,557	221,939	78,419

17.3 ANIMAL CONTRIBUTION TO CROPS: Number of Crop Growing households using organic fertilizer by District during 2002/03 agriculture year, Arusha

District	Did you apply organic fertilizer during 2002/03?					
	Using Organic Fertilizer		Not Using Organic Fertilizer		Total	
	Number	%	Number	%	Number	%
Monduli	4,244	7	21,752	22	25,996	17
Arumeru	40,409	70	35,613	37	76,022	49
Arusha	519	1	1,119	1	1,637	1
Karatu	11,449	20	15,892	16	27,341	18
Ngorongoro	1,088	2	22,773	23	23,860	15
Total	57,709	100	97,148	100	154,857	100

17.4 ANIMAL CONTRIBUTION TO CROPS: Area of farm yard manure and Compost Application by District during 2002/03 agriculture year, Arusha Region

District	Farm Yard Manure Area Applied		Compost Area Applied		Total Area applied with Organic Fertilizers	
	Area (Ha)	%	Area (Ha)	%	Area (Ha)	%
Monduli	4,052	10	542	43	4,593	11
Arumeru	24,786	59	601	47	25,387	59
Arusha	1,101	3	0	0	1,101	3
Karatu	11,271	27	130	10	11,401	26
Ngorongoro	876	2	0	0	876	2
Total	42,086	100	1,273	100	43,358	100

CATTLE PRODUCTION

18.1 CATTLE PRODUCTION: Total Number Households rearing Cattle by District during 2002/03 agriculture year, Arusha Region

District	Households Rearing Cattle		Households Not Rearing Cattle		Total Agriculture households	Total livestock keeping households
	Number	%	Number	%		
Monduli	19,706	76	6,290	24	25,996	22,349
Arumeru	51,925	68	24,097	32	76,022	59,589
Arusha	1,130	69	507	31	1,637	1,239
Karatu	15,708	57	11,634	43	27,341	20,050
Ngorongoro	19,459	82	4,401	18	23,860	21,117
Total	107,928	70	46,930	30	154,857	124,344

18.2 CATTLE PRODUCTION: Number of Cattle By Type and District as of 1st October, 2003

District	Indigenous			Improved Beef			Improved Dairy			Total Cattle		
	Number of Households	Number of Cattle	%	Number of Households	Number of Cattle	%	Number of Households	Number of Cattle	%	Number of Households	Number of Cattle	%
Monduli	19,123	596,474	99.8	68	68	0.0	619	1,239	0.2	19,653	597,781	37.5
Arumeru	33,223	189,622	77.1	1,564	2,459	0.0	20,105	54,009	0.0	51,925	246,090	15.4
Arusha	866	5,460	84.9	0	0	0.0	302	972	15.1	1,130	6,432	0.4
Karatu	15,329	146,159	98.2	133	326	0.0	873	2,278	1.5	15,708	148,762	9.3
Ngorongoro	19,459	594,389	100.0	0	0	0.0	59	178	0.0	19,459	594,567	37.3
Total	88,000	1,532,103	96.1	1,764	2,853	0.2	21,959	58,677	3.7	107,875	1,593,633	100.0

18.3 CATTLE PRODUCTION: Number of Households Rearing Cattle, Head of Cattle and Average Head per Household by Herd Size as of 1st October, 2003

Herd Size	Cattle Rearing Households		Heads of Cattle		Average Number Per Household
	Number	%	Number	%	
1-5	54,443	50	156,773	10	3
6-10	24,902	23	194,133	12	8
11-15	8,209	8	106,383	7	13
16-20	5,076	5	90,413	6	18
21-30	5,293	5	132,326	8	25
31-40	2,232	2	79,920	5	36
41-50	1,968	2	92,120	6	47
51-60	1,373	1	78,371	5	57
61-100	2,022	2	162,899	10	81
101-150	832	1	106,931	7	129
151+	1,525	1	393,363	25	258
Total	107,875	100	1,593,633	100	15

18.4 CATTLE PRODUCTION: Number of Cattle by Category and Type of Cattle; on 1st October 2003

Category of Cattle	Indigenous Cattle		Improved Beef Cattle		Improved Dairy Cattle		Total	
	Number	%	Number	%	Number	%	Number	%
Bulls	137,456	96.2	976	0.7	4,386	3.1	142,819	9.0
Cows	597,521	95.5	198	0.0	27,991	4.5	625,710	39.3
Steers	210,218	99.2	842	0.4	837	0.0	211,897	13.3
Heifers	203,964	96.0	182	0.1	8,321	3.9	212,466	13.3
Male Calves	186,326	95.5	465	0.2	8,416	4.3	195,206	12.2
Female Calves	196,618	95.7	191	0.1	8,726	4.2	205,535	12.9
Total	1,532,103	96.1	2,853	0.2	58,677	3.7	1,593,633	100.0

18.5 CATTLE PRODUCTION: Number of Indigenous Cattle By Category and District as on 1st October, 2003

District	Category - Indigenous						
	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	Total
Monduli	46,319	252,310	70,612	80,645	71,116	75,473	596,474
Arumeru	26,102	61,345	37,081	18,269	22,735	24,090	189,622
Arusha	360	2,546	1,300	65	682	507	5,460
Karatu	16,152	50,659	30,997	14,371	15,762	18,216	146,159
Ngorongoro	48,523	230,661	70,228	90,614	76,031	78,333	594,389
Total	137,456	597,521	210,218	203,964	186,326	196,618	1,532,103

18.6 CATTLE PRODUCTION: Number of Improved Beef Cattle By Category and District as on 1st October, 2003

District	Category - Improved Beef Cattle						
	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	Total
Monduli	68	.	68
Arumeru	976	198	698	.	397	191	2,459
Arusha
Karatu	.	.	144	182	.	.	326
Ngorongoro
Total	976	198	842	182	465	191	2,853

18.7 CATTLE PRODUCTION: Number of Improved Dairy Cattle By Category and District as on 1st October, 2003

District	Category - Improved Dairy Cattle						Total
	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	
Monduli	.	396	310	238	148	148	1,239
Arumeru	4,241	26,155	527	7,423	7,717	7,946	54,009
Arusha	14	449	.	130	212	166	972
Karatu	131	991	.	352	339	465	2,278
Ngorongoro	.	.	.	178	.	.	178
Total	4,386	27,991	837	8,321	8,416	8,726	58,677

18.8 CATTLE PRODUCTION: Number of Cattle By Category and District as on 1st October, 2003

District	Total Cattle						Total
	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	
Monduli	46,319	252,706	70,922	80,882	71,332	75,621	597,781
Arumeru	31,319	87,697	38,306	25,693	30,848	32,227	246,090
Arusha	374	2,995	1,300	195	895	673	6,432
Karatu	16,283	51,650	31,141	14,904	16,101	18,682	148,762
Ngorongoro	48,523	230,661	70,228	90,792	76,031	78,333	594,567
Total	142,819	625,710	211,897	212,466	195,206	205,535	1,593,633

GOATS PRODUCTION

19.1 GOAT PRODUCTION: Total Number of Goats by Type and District as on 1st October, 2003

District	Indigenous			Improved for Meat			Improved Dairy			Total Goat		
	Number of Households	Number of Goats	%	Number of Households	Number of Goats	%	Number of Households	Number of Goats	%	Number of Households	Number of Goats	%
Monduli	21,136	816,736	99.8	84	507	0.1	129	733	0.1	21,136	817,976	49.6
Arumeru	35,738	219,306	97.1	0	0	0.0	2,440	6,641	2.9	37,419	225,948	13.7
Arusha	946	7,569	100.0	0	0	0.0	0	0	0.0	946	7,569	0.5
Karatu	14,318	129,769	97.6	128	272	0.2	540	2,901	2.2	14,435	132,942	8.1
Ngorongoro	19,481	461,545	99.0	121	542	0.1	1,006	3,923	0.8	19,541	466,011	28.2
Total	91,619	1,634,926	99.1	334	1,320	0.1	4,114	14,199	0.9	93,477	1,650,445	100.0

19.2 GOAT PRODUCTION: Number of Households Rearing Goats by Herd Size on 1st October, 2003

Herd Size	Goat Rearing Households		Head of Goats		Average Number Per Household
	Number	%	Number	%	
1-4	28,357	30	76,083	5	3
5-9	27,927	30	186,131	11	7
10-14	12,073	13	136,256	8	11
15-19	6,156	7	100,315	6	16
20-24	5,303	6	112,220	7	21
25-29	2,129	2	55,935	3	26
30-39	3,703	4	120,619	7	33
40+	7,830	8	862,885	52	110
Total	93,477	100	1,650,445	100	18

19.3 Total Number of Goats by Category and Type of Goat as of 1st October, 2003 and District

Category of Goats	Indigenous Goats		Improved Meat Goats		Improved Dairy Goats		Total	
	Number	%	Number	%	Number	%	Number	%
Billy Goat	172,115	99.1	0	0.0	1,531	0.9	173,646	10.5
Castrated Goat	196,392	99.7	0	0.0	519	0.0	196,910	11.9
She Goat	783,270	99.2	697	0.1	5,871	0.7	789,837	47.9
Male Kid	229,672	98.8	56	0.0	2,729	1.2	232,458	14.1
She Kid	253,477	98.4	568	0.2	3,549	1.4	257,594	15.6
Total	1,634,926	99.1	1,320	0.1	14,199	0.9	1,650,445	100.0

19.4 Total Number of Indigenous Goat by Category and District as on 1st October, 2003

District	Number of Indigenous Goats					
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Monduli	79,129	100,166	393,470	116,753	127,219	816,736
Arumeru	29,356	19,270	106,870	26,525	37,285	219,306
Arusha	919	527	3,896	1,344	882	7,569
Karatu	18,745	13,035	60,695	17,578	19,716	129,769
Ngorongoro	43,965	63,394	218,339	67,472	68,375	461,545
Total	172,115	196,392	783,270	229,672	253,477	1,634,926

19.5 GOAT PRODUCTION: Number of Improved Goat for Meat by Category and District as on 1st October, 2003

District	Number of Improved Meat Goats					
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Monduli	507	507
Arumeru
Arusha
Karatu	.	.	216	56	.	272
Ngorongoro	.	.	481	.	61	542
Total	.	.	697	56	568	1,320

19.6 Number of Improved Dairy Goat by Category and District on 1st October, 2003

District	Number of Improved Dairy Goats					Total
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	
Monduli	184	.	403	.	146	733
Arumeru	809	395	2,893	965	1,579	6,641
Arusha
Karatu	117	.	2,210	249	325	2,901
Ngorongoro	420	124	365	1,516	1,499	3,923
Total	1,531	519	5,871	2,729	3,549	14,199

19.7 Total Number of Goats by Category and District on 1st October, 2003

District	Total Goat					Total
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	
Monduli	79,313	100,166	393,873	116,753	127,871	817,976
Arumeru	30,166	19,665	109,763	27,490	38,864	225,948
Arusha	919	527	3,896	1,344	882	7,569
Karatu	18,862	13,035	63,121	17,883	20,041	132,942
Ngorongoro	44,385	63,517	219,184	68,988	69,935	466,011
Total	173,646	196,910	789,837	232,458	257,594	1,650,445

SHEEP PRODUCTION

20.1 Total Number of Sheep By Breed and on 1st October 2003

Breed	Number of Indigenous		Number of Improved for Mutton		Total Sheep	
	Number	%	Number	%	Number	%
Ram	108,859	99	1,317	1	110,177	11
Castrated Sheep	120,778	99	786	1	121,564	12
She Sheep	487,169	100	1,905	0	489,073	48
Male Lamb	140,224	100	380	0	140,604	14
She Lamb	158,763	98	3,968	2	162,731	16
Total	1,015,793	99	8,356	1	1,024,149	100

20.2 Number of Households Raising or Managing Sheep by District on 1st October, 2003

District	Households Raising Sheep		Households Not Raising Sheep		Number of Agricultural Households	Total Livestock keeping Households
	Number	%	Number	%		
Monduli	15,825	61	10,171	39	25,996	22,349
Arumeru	28,529	38	47,493	62	76,022	59,589
Arusha	550	34	1,088	66	1,637	1,239
Karatu	9,362	34	17,979	66	27,341	20,050
Ngorongoro	15,755	66	8,105	34	23,860	21,117
Total	70,022	45	84,835	55	154,857	124,344

20.3 Number of Sheep by Type of Sheep and District as 1st October, 2002/03

District	Number of Indigenous		Number of Improved for Mutton		Total Sheep	
	Number	%	Number	%	Number	%
Monduli	513,200	100	353	0	513,553	50
Arumeru	113,439	98	2,222	2	115,661	11
Arusha	2,818	100	0	0	2,818	0
Karatu	47,300	100	65	0	47,365	5
Ngorongoro	339,036	98	5,716	2	344,752	34
Total	1,015,793	99	8,356	1	1,024,149	100

20.4 Number of Households and Heads of Sheep by Herd Size on 1st October 2003

Herd Size	Number of Household	%	Number of Sheep	%	Average Number Per Household
1-4	33,618	48	82,664	8	2
5-9	16,540	24	105,846	10	6
10-14	7,125	10	81,950	8	12
15-19	2,559	4	41,876	4	16
20-24	2,907	4	60,466	6	21
25-29	941	1	24,528	2	26
30-39	861	1	27,401	3	32
40+	4,828	7	599,418	59	124
Total	69,378	100	1,024,149	100	15

20.5 Average Number of Sheep by Type of Sheep and District on 1st October 2003, Arusha Region

District	Number of Indigenous		Number of Improved for Mutton		Total Sheep	
	Number of Households	Average	Number of Households	Average	Number of Households	Average
Monduli	513,200	32	1,317	0	514,518	33
Arumeru	113,439	4	786	0	114,225	4
Arusha	2,818	5	1,905	3	4,723	9
Karatu	47,300	5	380	0	47,680	5
Ngorongoro	339,036	22	3,968	0	343,004	22
Total	1,015,793	15	8,356	0	1,024,149	15

20.6 Total Number of Indigenous Sheep by Sheep Type and District on 1st October 2003

District	Number of Indigenous Sheep					
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	Total
Monduli	42,252	57,569	258,502	72,880	81,997	513,200
Arumeru	25,712	4,945	55,711	10,184	16,888	113,439
Arusha	382	77	1,585	468	307	2,818
Karatu	9,243	3,216	23,437	5,219	6,185	47,300
Ngorongoro	31,271	54,972	147,934	51,473	53,387	339,036
Total	108,859	120,778	487,169	140,224	158,763	1,015,793

20.7 Total Number of Improved Mutton Sheep by Type and District on 1st October 2003

District	Number of Improved for Mutton					
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	Total
Monduli	.	.	220	88	44	353
Arumeru	1,074	.	784	.	363	2,222
Arusha
Karatu	.	.	65	.	.	65
Ngorongoro	243	786	835	292	3,560	5,716
Total	1,317	786	1,905	380	3,968	8,356

20.8 Total Number of Sheep by Sheep Type and District on 1st October 2003

District	Total Sheep					
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	Total
Monduli	42,252	57,569	258,723	72,968	82,041	513,553
Arumeru	26,786	4,945	56,495	10,184	17,252	115,661
Arusha	382	77	1,585	468	307	2,818
Karatu	9,243	3,216	23,503	5,219	6,185	47,365
Ngorongoro	31,514	55,757	148,769	51,765	56,947	344,752
Total	110,177	121,564	489,073	140,604	162,731	1,024,149

PIGS PRODUCTION

21.1 Number of Households and Pigs by Herd Size on 1st October 2003

Herd Size	Pig Rearing Households		Heads of Pigs		Average Number Per Household
	Number	%	Number	%	
1-4	2,787	88	4,432	56	2
5-9	120	4	601	8	5
10-14	246	8	2,925	37	12
Total	3,154	100	7,958	100	3

21.2 Number of Households and Pigs by District on 1st October 2003

District	Number of Household	Number of Pig	Average Number Per Household
Monduli	172	344	2
Arumeru	637	3,552	6
Arusha	18	73	4
Karatu	2,327	3,989	2
Total	3,154	7,958	3

21.3 Number of Pigs by Type and District on 1st October, 2003

District	Boar	Castrated Male	Sow / Gilt	Male Piglet	She Piglet	Total
Monduli	0	86	258	0	0	344
Arumeru	0	120	1,164	1,396	872	3,552
Arusha	18	0	36	0	18	73
Karatu	1,399	288	1,739	220	344	3,989
Total	1,417	494	3,198	1,616	1,234	7,958

LIVESTOCK PESTS AND PARASITE CONTROL

22.5 LIVESTOCK PESTS AND PARASITE CONTROL: Number and Percent of agricultural households reporting to have encountered Tsetse Flies problems during 2002/03 Agriculture Year by District

District	Tsetse Flies Problems		No Tsetse Flies Problems		Total
	Number of Households	%	Number of Households	%	
Monduli	6,419	29	15,442	71	21,861
Arumeru	19,491	33	39,052	67	58,543
Arusha	0	0	1,201	100	1,201
Karatu	6,063	30	13,840	70	19,903
Ngorongoro	10,197	49	10,738	51	20,935
Total	42,170	34	80,272	66	122,443

22.6 LIVESTOCK PESTS AND PARASITE CONTROL: Number of Livestock Rearing Households by Methods of Tsetse flies Control Use and District During the 2002/03 Agricultural Year

District	Method of Tsetse Flies Control								Total
	None		Spray		Dipping		Trapping		
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	
Monduli	1,433	22	4,518	70	435	7	34	1	6,419
Arumeru	7,716	40	9,880	51	1,299	7	596	3	19,491
Karatu	2,312	38	3,461	57	213	4	76	1	6,063
Ngorongoro	5,670	56	4,354	43	174	2	0	0	10,197
Total	17,131	41	22,213	53	2,121	5	706	2	42,170

OTHER LIVESTOCK

FISH FARMING

28.1 FISH FARMING: Number of Agricultural Households involved in Fish Farming and District, 2002/03 Agricultural Year

District	Agricultural Households Doing Fish Farming		Agricultural Households NOT Doing Fish Farming		Total
	Number	%	Number	%	
Monduli	48	0.2	25,949	99.8	25,996
Arumeru	0	0.0	76,022	100.0	76,022
Arusha	0	0.0	1,637	100.0	1,637
Karatu	0	0.0	27,341	100.0	27,341
Ngorongoro	0	0.0	23,860	100.0	23,860
Total	48	0.0	154,810	100.0	154,857

28.2 FISH FARMING: Number of Agricultural Households By System of Farming and District during the 2002/03 Agricultural Year

District	Fish Farming System	
	Dug out Por	Total
Monduli	48	48
Total	48	48

28.3 FISH FARMING: Number of Agricultural Households By Source of Fingerlings and District during the 2002/03 Agricultural Year

District	Source of Fingerling	
	NGOs / Project	Total
Monduli	48	48
Total	48	48

28.4 FISH FARMING: Number of Agricultural Households By Location of Selling Fish and District during the 2002/03 Agricultural Year

District	Trader at Farm	
	Number	Total
Monduli	48	48
Total	48	48

28.5 FISH FARMING: Total Number of Fish Harvested by Type and District, 2002/03 Agricultural Year

District	Number of Tilapia	Number of Carp	Number of Others
Monduli	19,083	0	0
Total	19,083	0	0

LIVESTOCK EXTENSION

29.1a LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension by District During the 2002/03 Agricultural Year

District	Received Livestock Advice		Did Not Receive Livestock Advice		Total	Total Number of households raising livestock	% receiving advice out of total
	Number	%	Number	%			
Monduli	5,714	22.0	20,282	78.0	25,996	22,349	26
Arumeru	24,889	32.7	51,133	67.3	76,022	59,589	42
Arusha	1,071	65.4	566	34.6	1,637	1,239	86
Karatu	2,617	9.6	24,725	90.4	27,341	20,050	13
Ngorongoro	1,379	5.8	22,482	94.2	23,860	21,117	7
Total	35,670	23.0	119,187	77.0	154,857	124,344	29

29.1b LIVESTOCK EXTENSION SERVICE PROVIDERS: Number of Agricultural Households By Source of Extension Services and District during the 2002/03 Agricultural Year

District	Source of extension advice									
	Government		NGO / Development Project		Co-operative		Large Scale Farmer		Other	
	Number	%	Number	%	Number	%	Number	%	Number	%
Monduli	1,648	100	0	0	0	0	0	0	0	0
Arumeru	16,941	95	623	4	0	0	187	1	0	0
Arusha	381	100	0	0	0	0	0	0	0	0
Karatu	1,550	100	0	0	0	0	0	0	0	0
Ngorongoro	61	100	0	0	0	0	0	0	0	0
Total	20,581	96	623	3	0	0	187	1	0	0

29.6 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Disease Control By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Disease Control				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other	Total		
Monduli	4,453	84	35	4,572	22,349	20
Arumeru	20,434	1,243	0	21,677	59,589	36
Arusha	1,089	0	0	1,089	1,239	88
Karatu	2,136	0	0	2,136	20,050	11
Ngorongoro	414	537	0	951	21,117	5
Total	28,526	1,864	35	30,425	124,344	24
%	93.8	6.1	0.1	100		

29.7 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Herd /Flock Size and Selection By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Herd/Flock Size				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other	Total		
Monduli	1,770	0	0	1,770	22,349	8
Arumeru	12,562	345	0	12,907	59,589	22
Arusha	327	0	0	327	1,239	26
Karatu	1,576	0	0	1,576	20,050	8
Ngorongoro	112	0	0	112	21,117	1
Total	16,348	345	0	16,693	124,344	13
%	97.9	2.1	0.0	100		

29.8 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Pasture Establishment and Selection By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Pasture Establishment and Selection				Total	Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other	not applicable			
Monduli	2,527	137	0	0	2,663	22,349	12
Arumeru	12,509	471	0	0	12,981	59,589	22
Arusha	492	0	0	0	492	1,239	40
Karatu	1,123	0	0	0	1,123	20,050	6
Ngorongoro	61	0	0	0	61	21,117	0
Total	16,712	608	0	0	17,320	124,344	14
%	96.5	3.5	0.0	0.0	100		

29.9 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Group Formation and Strengthening By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Group Formation and Strengthening				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Co-operative	Total		
Monduli	1,588	326	86	2,000	22,349	9
Arumeru	13,988	713	240	14,941	59,589	25
Arusha	282	0	0	282	1,239	23
Karatu	685	0	0	685	20,050	3
Ngorongoro	61	0	0	61	21,117	0
Total	16,603	1,040	326	17,969	124,344	14
%	92.4	5.8	1.8	100		

29.10 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Calf Rearing By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Calf Rearing				Total Number of households raising livestock	% receiving advice out of total
	Government	Other	not applicable	Total		
Monduli	1,886	84	0	1,971	22,349	9
Arumeru	14,232	623	0	14,855	59,589	25
Arusha	977	0	0	977	1,239	79
Karatu	1,469	0	0	1,469	20,050	7
Ngorongoro	242	56	0	298	21,117	1
Total	18,806	764	0	19,570	124,344	16
%	96.1	3.9	0.0	100		

29.11 LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Use of Improved Bulls By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Improved Bulls				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other	Total		
Monduli	2,324	137	0	2,461	22,349	11
Arumeru	14,139	827	0	14,966	59,589	25
Arusha	880	0	0	880	1,239	71
Karatu	1,680	0	0	1,680	20,050	8
Ngorongoro	175	0	0	175	21,117	1
Total	19,197	963	0	20,160	124,344	16
%	95.2	4.8	0.0	100		

29.12 LIVESTOCK EXTENSION: Number of Agricultural Households By Quality of Extension Services and District, 2002/03 Agricultural Year

District	Quality of Service										Total
	Very Good		Good		Average		Poor		No Good		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Monduli	196	3	3,004	46	2,369	36	662	10	353	5	6,584
Arumeru	7,784	32	15,548	63	1,249	5	0	0	0	0	24,581
Arusha	18	2	555	52	498	47	0	0	0	0	1,071
Karatu	771	26	1,676	57	300	10	196	7	0	0	2,943
Ngorongoro	234	28	410	50	180	22	0	0	0	0	825
Total	9,003	25	21,193	59	4,597	13	858	2	353	1	36,004

ACCESS TO INFRASTRUCTURE AND OTHER SERVICES

33.01a Mean Distances from Household Dwellings to Infrastructures and Services by Districts

District	Mean Distance to										
	Secondary Schools	Primary Schools	All weather roads	Feeder Roads	Hospitals	Health Clinics	Regional Capital	Primary Markets	Secondary Market	Tertiary Market	Tarmac Roads
Monduli	41.6	4.7	8.7	4.0	84.9	12.2	108.2	12.8	20.1	77.9	39.4
Arumeru	5.5	1.9	2.8	0.4	18.5	3.7	28.2	5.5	9.3	22.4	9.7
Arusha	4.3	2.9	2.9	1.7	14.2	6.7	17.2	13.2	13.8	15.2	14.9
Karatu	11.4	3.1	3.6	2.9	24.6	5.6	177.0	10.7	12.8	56.1	28.1
Ngorongoro	43.5	6.0	26.4	2.2	58.5	17.5	314.6	23.9	40.4	184.3	212.3
Total	18.5	3.2	7.5	1.7	36.9	7.6	111.9	10.6	16.6	62.6	49.2

Regional Capital	111.9
Tarmac Roads	62.6
Tertiary Market	49.2
Hospitals	36.9
Secondary Schools	18.5
Secondary Market	16.6
Primary Markets	10.6
Health Clinics	7.6
All weather roads	7.5
Primary Schools	3.2
Feeder Roads	1.7

33.01k: Number of Households by Distance to Primary Market by District for 2002/03 agricultural year

District	Primary Market										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Monduli	1,046	4.0	3,803	14.6	10,485	40.3	4,741	18.2	5,920	22.8	25,996	12.8
Arumeru	8,601	11.3	10,820	14.2	45,791	60.2	9,319	12.3	1,490	2.0	76,022	5.5
Arusha	0	0.0	111	6.8	346	21.1	1,104	67.4	77	4.7	1,637	13.2
Karatu	1,011	3.7	2,551	9.3	12,708	46.5	7,408	27.1	3,663	13.4	27,341	10.7
Ngorongoro	1,375	5.8	1,238	5.2	6,297	26.4	5,087	21.3	9,863	41.3	23,860	23.9
Total	12,033	7.8	18,523	12.0	75,627	48.8	27,660	17.9	21,013	13.6	154,857	10.6

33.01l: Number of Households by Distance to Tertiary Market by District for 2002/03 agricultural year

District	Tertiary Market										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Monduli	479	1.8	592	2.3	3,332	12.8	700	2.7	20,893	80.4	25,996	77.9
Arumeru	2,589	3.4	1,946	2.6	13,961	18.4	15,623	20.6	41,904	55.1	76,022	22.4
Arusha	0	0.0	36	2.2	356	21.8	784	47.9	460	28.1	1,637	15.2
Karatu	184	0.7	307	1.1	5,818	21.3	4,647	17.0	16,385	59.9	27,341	56.1
Ngorongoro	1,191	5.0	295	1.2	1,713	7.2	855	3.6	19,806	83.0	23,860	184.3
Total	4,444	2.9	3,177	2.1	25,180	16.3	22,609	14.6	99,448	64.2	154,857	62.6

33.01m: Number of Households by Distance to Secondary Market by District for 2002/03 agricultural year

District	Secondary Market										Total number of households	Mean Distance
	Less than 1 km		1-2.9 km		3.0-9.9		10.0-19.9		Above 20 km			
	No of households	%	No of households	%	No of households	%	No of households	%	No of households	%		
Monduli	446	1.7	2,628	10.1	8,413	32.4	4,107	15.8	10,402	40.0	25,996	20.1
Arumeru	4,750	6.2	5,880	7.7	39,767	52.3	15,358	20.2	10,266	13.5	76,022	9.3
Arusha	0	0.0	0	0.0	441	26.9	1,120	68.4	77	4.7	1,637	13.8
Karatu	133	0.5	1,657	6.1	12,418	45.4	8,440	30.9	4,694	17.2	27,341	12.8
Ngorongoro	791	3.3	574	2.4	3,598	15.1	3,495	14.6	15,402	64.6	23,860	40.4
Total	6,120	4.0	10,739	6.9	64,637	41.7	32,520	21.0	40,841	26.4	154,857	16.6

**33.19a TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Veterinary Clinic and District, 2002/03
Agricultural Year**

District	Satisfaction of Using Veterinary Clinic										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Monduli	656	2	6,113	23	9,906	37	4,615	17	5,748	21	27,038
Arumeru	14,212	26	29,466	54	7,211	13	2,655	5	648	1	54,191
Arusha	38	1	2,554	85	172	6	0	0	230	8	2,995
Karatu	783	4	3,077	17	7,695	43	5,964	33	345	2	17,864
Ngorongoro	926	10	4,298	45	1,881	20	2,059	22	369	4	9,533
Total	16,615	15	45,509	41	26,865	24	15,292	14	7,340	7	111,620

**33.19b TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Extension Centre and District, 2002/03
Agricultural Year**

District	Extension Centre										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Monduli	254	3	3,269	44	3,076	41	363	5	497	7	7,459
Arumeru	5,057	23	13,301	61	3,063	14	333	2	198	1	21,953
Arusha	0	0	508	93	0	0	0	0	38	7	546
Karatu	324	5	1,624	25	3,108	48	1,332	21	66	1	6,454
Ngorongoro	0	0	1,755	63	637	23	355	13	62	2	2,809
Total	5,636	14	20,458	52	9,883	25	2,383	6	860	2	39,220

**33.19c TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Research Station and District, 2002/03
Agricultural Year**

District	Research Station										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Monduli	167	6	194	7	524	18	1,011	35	1,007	35	2,903
Arumeru	765	19	2,639	64	396	10	333	8	0	0	4,134
Arusha	0	0	433	85	38	8	0	0	38	8	510
Karatu	0	0	215	13	568	33	913	54	0	0	1,696
Ngorongoro	0	0	0	0	124	26	295	61	62	13	481
Total	932	10	3,481	36	1,651	17	2,552	26	1,107	11	9,723

33.19d TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Plant Protection Lab. and District, 2002/03 Agricultural Year

District	Plant Protection Lab										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Monduli	0	0	108	4	363	15	1,011	41	1,007	40	2,489
Arumeru	1,117	24	2,433	52	638	14	352	7	157	3	4,697
Arusha	0	0	415	84	38	8	0	0	38	8	491
Karatu	65	5	67	6	443	36	648	53	0	0	1,224
Ngorongoro	58	10	62	10	124	21	295	49	62	10	601
Total	1,241	13	3,085	32	1,607	17	2,306	24	1,264	13	9,501

33.19e TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Land Registration Office and District, 2002/03 Agricultural Year

District	Land Registration Office										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Monduli	0	0	332	8	1,719	41	959	23	1,194	28	4,204
Arumeru	588	8	4,004	56	1,471	21	925	13	120	2	7,109
Arusha	0	0	360	79	57	12	0	0	38	8	455
Karatu	56	2	248	7	2,385	66	888	24	62	2	3,639
Ngorongoro	0	0	290	28	271	26	400	39	62	6	1,022
Total	644	4	5,235	32	5,901	36	3,172	19	1,477	9	16,429

33.19f TYPE OF SERVICE: Number of Agricultural Households by Satisfaction of Using Livestock development Centre and District, 2002/03 Agricultural Year

District	Livestock Development Centre										Total number of households
	Very Good		Good		Average		Poor		No good		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Monduli	105	1	69	50	1,500	28	1,031	20	1,037	1	3,743
Arumeru	2,906	11	4,242	54	749	23	157	11	0	0	8,054
Arusha	0	0	421	21	0	16	0	6	38	58	459
Karatu	205	12	74	39	426	37	648	11	74	0	1,427
Ngorongoro	247	7	667	4	59	0	305	89	62	0	1,340
Total	3,463	3	5,473	39	2,734	30	2,141	22	1,211	6	15,022

HOUSEHOLD FACILITIES

Table 34.1 Number of Agriculture Households by Type of Toilet and District During the 2002/03 Agriculture Year

District	Type of toilet					Total number of households
	No Toilet	Flush Toilet	Traditional Pit Latrine	Improved Pit Latrine - hh Owned	Other Type	
Monduli	20,072	176	5,085	233	430	25,996
Arumeru	7,694	640	65,261	2,426	0	76,022
Arusha	38	0	1,599	0	0	1,637
Karatu	2,468	311	23,045	1,444	73	27,341
Ngorongoro	19,959	421	3,481	0	0	23,860
Total	50,232	1,549	98,470	4,104	503	154,857
%	32.4	1.0	63.6	2.7	0.3	100.0

34.2 Number of households reporting average number of rooms and type of Roofing Materials by District, 2002/03 Agricultural Year

District	Average Number of rooms per Household	Iron Sheets	Tiles	Concrete	Asbestos	Grass / Leaves	Grass & Mud	Other	Total number of households
Monduli	3	5,693	432	15	278	16,957	2,316	305	25,996
Arumeru	3	57,136	0	199	0	18,013	674	0	76,022
Arusha	3	1,101	0	0	0	115	421	0	1,637
Karatu	2	11,751	139	76	194	13,715	1,466	0	27,341
Ngorongoro	2	1,379	292	0	59	13,230	7,167	1,734	23,860
Total	2	77,059	863	290	531	62,029	12,045	2,039	154,857
%		49.8	0.6	0.2	0.3	40.1	7.8	1.3	100

Table 34.3: Number of Agricultural Households by Type of Owned Assets and District during 2002/03 Agricultural Year

Type of Owned Asset	District										Total	
	Monduli		Arumeru		Arusha		Karatu		Ngorongoro		Number of Households	%
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%		
Radio	15,959	16	58,180	60	1,101	1	16,203	17	5,813	6	97,256	62.8
Landline phone	464	30	707	46	0	0	308	20	61	4	1,541	1.0
Mobile phone	564	7	6,669	81	14	0	707	9	238	3	8,192	5.3
Iron	2,873	7	32,313	75	607	1	6,419	15	696	2	42,908	27.7
Wheelbarrow	1,493	8	15,752	81	239	1	1,606	8	405	2	19,495	12.6
Bicycle	5,635	14	24,777	61	755	2	8,601	21	706	2	40,475	26.1
Vehicle	325	8	3,228	76	18	0	639	15	62	1	4,271	2.8
Television / Video	127	3	3,527	89	65	2	169	4	59	1	3,947	2.5
Total Number of Households	25,996	17	76,022	49	1,637	1	27,341	18	23,860	15	154,857	100.0

34.4: Number of Agricultural Households by Main Source of Energy Used for Lighting during 2002/03 Agricultural Year

Main Source of Energy for Lighting	District										Total	
	Monduli		Arumeru		Arusha		Karatu		Ngorongoro			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Mains Electricity	272	5	4,639	87	87	2	317	6	0	0	5,315	3.4
Solar	80	10	483	59	0	0	132	16	121	15	816	0.5
Gas (Biogas)	72	39	0	0	0	0	57	31	55	30	184	0.1
Hurricane Lamp	4,246	8	36,667	69	559	1	9,330	18	2,250	4	53,053	34.3
Pressure Lamp	196	7	1,410	51	0	0	818	29	357	13	2,781	1.8
Wick Lamp	18,769	24	32,822	43	991	1	15,797	21	8,515	11	76,893	49.7
Candles	0	0	0	0	0	0	0	0	122	100	122	0.1
Firewood	2,361	15	0	0	0	0	890	6	12,381	79	15,632	10.1
Other	0	0	0	0	0	0	0	0	0	0	0	0.0
Total	25,996	17	76,022	49	1,637	1	27,341	18	23,860	0	154,857	100.0

34.5: Number of Agricultural Households by Main Source of Energy Used for Cooking during 2002/03 Agricultural Year

Main Source of Energy for Cooking	District										Total	
	Monduli		Arumeru		Arusha		Karatu		Ngorongoro			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Mains Electricity	81	14	317	55	0	0	113	20	62	11	573	0.4
Solar	158	74	0	0	0	0	0	0	55	26	213	0.1
Gas (Biogas)	72	100	0	0	0	0	0	0	0	0	72	0.0
Bottled Gas	0	0	191	77	56	23	0	0	0	0	247	0.2
Parraffin / Kerocine	101	8	1,185	88	0	0	56	4	0	0	1,343	0.9
Charcoal	307	10	1,944	66	69	2	590	20	55	2	2,965	1.9
Firewood	24,982	17	71,076	48	1,512	1	26,509	18	23,326	16	147,404	95.2
Crop Residues	68	8	415	48	0	0	73	9	303	35	859	0.6
Livestock Dung	227	19	894	76	0	0	0	0	61	5	1,181	0.8
Total	25,996	17	76,022	49	1,637	1	27,341	18	23,860	0	154,857	100.0

34.6: Number of Agricultural Households by Main Source of Drinking Water by Season (wet and dry) and District during 2002/03 Agricultural Year

Source	Season	District					Total
		Monduli	Arumeru	Arusha	Karatu	Ngorongoro	
Piped Water	wet season	11,123	59,509	1,623	13,356	4,376	89,987
	dry season	14,071	56,878	1,605	14,345	4,893	91,792
Protected Well	wet season	791	414	14	1,149	602	2,970
	Dry season	1,393	350	14	1,517	542	3,817
Protected / Covered Spring	wet season	1,001	857	0	361	749	2,968
	Dry season	1,544	857	0	499	921	3,821
Uprotected Well	wet season	761	1,364	0	1,260	2,968	6,353
	Dry season	496	789	0	1,194	2,691	5,170
Unprotected Spring	wet season	1,391	3,798	0	2,794	6,315	14,298
	Dry season	2,662	5,254	0	3,072	6,407	17,396
Surface Water (Lake / Dam / River / Stream)	wet season	9,835	8,460	0	6,585	7,780	32,660
	Dry season	3,270	11,492	0	5,962	7,863	28,587
Covered Rainwater Catchment	wet season	0	371	0	150	244	765
	Dry season	0	152	0	153	241	546
Uncovered Rainwater Catchment	wet season	733	1,125	0	895	827	3,580
	Dry season	0	0	0	293	303	596
Water Vendor	wet season	0	0	0	66	0	66
	Dry season	1,111	60	0	66	0	1,237
Tanker Truck	wet season	70	0	0	0	0	70
	Dry season	241	0	18	0	0	260
Bottled Water	wet season	0	0	0	0	0	0
	Dry season	0	0	0	0	0	0
Other	wet season	290	124	0	725	0	1,139
	dry season	1,208	189	0	239	0	1,636
Total Agricultural Households per District		25,996	76,022	1,637	27,341	23,860	154,857

34.7: Proportion of Agricultural Households by Main Source of Drinking Water by Season (wet and dry) and District during 2002/03 Agricultural Year

Source	Season	District					Total
		Monduli	Arumeru	Arusha	Karatu	Ngorongoro	
Piped Water	wet season	43	78	99	49	18	58
	dry season	54	75	98	52	21	59
Protected Well	wet season	3	1	1	4	3	2
	Dry season	5	0	1	6	2	2
Protected / Covered Spring	wet season	4	1	0	1	3	2
	Dry season	6	1	0	2	4	2
Uprotected Well	wet season	3	2	0	5	12	4
	Dry season	2	1	0	4	11	3
Unprotected Spring	wet season	5	5	0	10	26	9
	Dry season	10	7	0	11	27	11
Surface Water (Lake / Dam / River / Stream)	wet season	38	11	0	24	33	21
	Dry season	13	15	0	22	33	18
Covered Rainwater Catchment	wet season	0	0	0	1	1	0
	Dry season	0	0	0	1	1	0
Uncovered Rainwater Catchment	wet season	3	1	0	3	3	2
	Dry season	0	0	0	1	1	0
Water Vendor	wet season	0	0	0	0	0	0
	Dry season	4	0	0	0	0	1
Tanker Truck	wet season	0	0	0	0	0	0
	Dry season	1	0	1	0	0	0
Bottled Water	wet season	0	0	0	0	0	0
	Dry season	0	0	0	0	0	0
Other	wet season	1	0	0	3	0	1
	dry season	5	0	0	1	0	1

34.8: Number of Households Reporting Time Spent to and from Main Source of Drinking Water by Season (Wet and Dry) by District for 2002/03 agriculture year

Time Spent to and from Main Source of Drinking Water	Season	District				
		Monduli	Arumeru	Arusha	Karatu	Ngorongoro
Less than 10	wet season	1,338	17,940	65	1,606	355
	Dry season	877	12,494	83	589	296
10 - 19 Minutes	wet season	2,671	17,222	183	4,780	3,240
	Dry season	1,340	15,539	144	4,056	2,722
20 - 29 Minutes	wet season	1,803	5,252	94	1,422	1,133
	Dry season	685	4,570	94	1,226	593
30 - 39 Minutes	wet season	3,192	12,513	273	8,327	4,532
	Dry season	1,567	14,107	158	7,733	2,916
40 - 49 Minutes	wet season	1,454	1,924	0	1,057	1,592
	Dry season	916	2,333	0	1,341	1,270
50 - 59 Minutes	wet season	1,304	2,326	36	168	598
	Dry season	162	1,147	18	312	487
above one Hour	wet season	14,235	18,845	987	9,982	12,410
	Dry season	20,449	25,831	1,140	12,085	15,577

34.9: Proportion of Households Reporting Time Spent to and from Main Source of Drinking Water by Season (Wet and Dry) by District for 2002/03 agriculture year

Time Spent to and from Main Source of Drinking Water	Season	District				
		Monduli	Arumeru	Arusha	Karatu	Ngorongoro
Less than 10	wet season	5	24	4	6	1
	Dry season	3	16	5	2	1
10 - 19 Minutes	wet season	10	23	11	17	14
	Dry season	5	20	9	15	11
20 - 29 Minutes	wet season	7	7	6	5	5
	Dry season	3	6	6	4	2
30 - 39 Minutes	wet season	12	16	17	30	19
	Dry season	6	19	10	28	12
40 - 49 Minutes	wet season	6	3	0	4	7
	Dry season	4	3	0	5	5
50 - 59 Minutes	wet season	5	3	2	1	3
	Dry season	1	2	1	1	2
above one Hour	wet season	55	25	60	37	52
	Dry season	79	34	70	44	65

34.10: Number of Agricultural Households by Number of Meals the Household Normally Took per Day by District

Number of Meals per Day	District										Total	
	Monduli		Arumeru		Arusha		Karatu		Ngorongoro		Number of Households	%
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%		
One	1,580	37	2,279	53	38	1	57	1	333	8	4,288	2.8
Two	12,566	19	31,223	46	973	1	8,004	12	14,753	22	67,518	43.6
Three	11,851	14	42,520	51	626	1	19,280	23	8,774	11	83,051	53.6
Four	0	0	0	0	0	0	0	0	0	0	0	0.0
Total	25,996	17	76,022	49	1,637	1	27,341	18	23,860	0	154,857	100.0

34.11: Number of Households by Number of Days the Household Consumed Meat during the Preceding Week by District

Number of Days	District										Total	
	Monduli		Arumeru		Arusha		Karatu		Ngorongoro		Number of Households	%
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%		
Not Eaten	9,305	18	19,288	37	422	1	12,541	24	10,197	20	51,753	33
One	10,780	18	31,664	54	621	1	8,980	15	6,745	11	58,790	38
Two	4,599	14	17,117	54	479	2	4,676	15	5,029	16	31,900	21
Three	914	11	5,461	66	101	1	447	5	1,290	16	8,212	5
Four	188	10	1,144	61	14	1	336	18	180	10	1,861	1
Five	130	17	459	59	0	0	135	17	59	8	783	1
Six	0	0	0	0	0	0	0	0	0	0	0	0
Seven	82	5	888	57	0	0	227	15	361	23	1,558	1
Total	25,996	17	76,022	49	1,637	1	27,341	18	23,860	15	154,857	100

34.12: Number of Households by Number of Days the Household Consumed Fish during the Preceding Week by District

Number of Days	District										Total	
	Monduli		Arumeru		Arusha		Karatu		Ngorongoro		Number of Households	%
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%		
Not Eaten	18,010	20	32,615	36	575	1	19,411	21	21,251	23	91,863	59
One	4,568	12	28,665	73	688	2	4,428	11	956	2	39,305	25
Two	2,388	15	8,926	57	374	2	2,856	18	1,246	8	15,791	10
Three	685	14	3,427	73	0	0	379	8	234	5	4,725	3
Four	216	16	819	61	0	0	195	14	117	9	1,348	1
Five	84	8	847	84	0	0	72	7	0	0	1,003	1
Six	0	0	177	100	0	0	0	0	0	0	177	0
Seven	45	7	546	84	0	0	0	0	56	9	647	0
Total	25,996	17	76,022	49	1,637	1	27,341	18	23,860	15	154,857	100

34.13: Number of Households Reporting the Status of Food Satisfaction of the Household during the Preceding Year by District

Status of Food Satisfaction	District										Total	
	Monduli		Arumeru		Arusha		Karatu		Ngorongoro		Number of Households	%
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%		
Never	7,051	12	34,362	60	622	1	9,965	17	5,717	10	57,717	37.3
Seldom	8,883	19	18,240	39	823	2	10,354	22	7,956	17	46,256	29.9
Sometimes	2,252	22	4,632	46	115	1	1,051	10	2,000	20	10,049	6.5
Often	4,776	17	13,778	50	38	0	3,817	14	4,940	18	27,349	17.7
Always	3,034	22	5,010	37	38	0	2,154	16	3,249	24	13,486	8.7
Total	25,996	17	76,022	49	1,637	1	27,341	18	23,860	15	154,857	100.0

34.14: Number of Households by Type of Roofing Materials and District during the 2002/03 Agricultural Year

Roofing Materials	District										Total	
	Monduli		Arumeru		Arusha		Karatu		Ngorongoro		Number of Households	%
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%		
Iron Sheets	5,693	7	57,136	74	1,101	1	11,751	15	1,379	2	77,059	49.8
Tiles	432	50	0	0	0	0	139	16	292	34	863	0.6
Concrete	15	5	199	69	0	0	76	26	0	0	290	0.2
Asbestos	278	52	0	0	0	0	194	37	59	11	531	0.3
Grass / Leaves	16,957	27	18,013	29	115	0	13,715	22	13,230	21	62,029	40.1
Grass & Mud	2,316	19	674	6	421	3	1,466	12	7,167	60	12,045	7.8
Other	305	15	0	0	0	0	0	0	1,734	85	2,039	1.3
Total	25,996	17	76,022	49	1,637	1	27,341	18	23,860	15	154,857	100.0

34.15: Number of Households by Main Source of Cash Income and District during 2002/03 Agriculture Year

Main Source of Energy for Cooking	District										Total	
	Monduli		Arumeru		Arusha		Karatu		Ngorongoro		Number of Households	%
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%		
Sales of Food Crops	5,177	13	19,404	47	836	2	11,722	29	3,923	10	41,062	26.5
Sale of Livestock	14,759	35	6,114	14	38	0	5,146	12	16,527	39	42,584	27.5
Sale of Livestock Products	95	1	6,356	80	101	1	990	13	368	5	7,910	5.1
Sales of Cash Crops	753	5	12,280	80	0	0	2,245	15	0	0	15,278	9.9
Sale of Forest Products	475	37	582	45	0	0	182	14	61	5	1,300	0.8
Business Income	2,444	15	10,942	65	629	4	2,286	14	524	3	16,825	10.9
Wages & Salaries in Cash	460	5	7,187	72	32	0	1,779	18	458	5	9,917	6.4
Other Casual Cash Earnings	817	6	10,016	71	0	0	2,100	15	1,109	8	14,042	9.1
Cash Remittance	936	16	3,141	55	0	0	836	15	842	15	5,755	3.7
Fishing	0	0	0	0	0	0	56	100	0	0	56	0.0
Other	81	63	0	0	0	0	0	0	48	37	129	0.1
Total	25,996	17	76,022	49	1,637	1	27,341	18	23,860	15	154,857	100.0

APPENDIX III QUESTIONNAIRES

UNITED REPUBLIC OF TANZANIA

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Page Number

Agriculture Sample Census 2002/03



ACLF 1: Sub-village leader listing form

Region _____ Code <input type="text"/>	Ward _____ Code <input type="text"/>
District _____ Code <input type="text"/>	Village _____ Code <input type="text"/>

Name of Village Chairman:.....

Sub-village leader number	Name of sub-village leader	Number of households		Comments
		From office register	After enumeration	
(1)	(2)	(3)	(4)	(5)
<input type="text"/>		<input type="text"/>	<input type="text"/>	
<input type="text"/>		<input type="text"/>	<input type="text"/>	
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<input type="text"/>		<input type="text"/>	<input type="text"/>	
<input type="text"/>		<input type="text"/>	<input type="text"/>	
<input type="text"/>		<input type="text"/>	<input type="text"/>	
Total		<input type="text"/>	<input type="text"/>	

Name of enumerator..... Signature Date.....

Name of supervisor..... Signature Date.....

UNITED REPUBLIC OF TANZANIA



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Interval
Starting point

Agriculture Sample Census 2002/03

Page Number.....

ACLF: 2 Household listing form - form for listing household heads and their agriculture activities

Region _____	Code <input type="text"/> <input type="text"/>	Name of Sub-village Leader _____
District _____	Code <input type="text"/>	Subvillage leader code <input type="text"/> <input type="text"/>
Ward _____	Code <input type="text"/> <input type="text"/>	
Village _____	Code <input type="text"/> <input type="text"/>	Name of Sub-village _____



Household Number (1)	Household head name (2)	Fields + (3)	Number of									✓ if the respondent qualifies to be a farmer* (13)	Farmer Serial Numbers (14)
			Cattle				Goats	Sheep	Pigs	poultry/ducks	Rabbit		
			Total Number (4)	Adult male cattle (5)	Adult female cattle (6)	Calves (7)							
<input type="text"/>													
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<input type="text"/>													
Totals													

* NOTE: (Column 13) Place a "✓" if the household has at least 1 field over 25m² and/or keeps at least 1 Cow, 5 Goats/Sheep/Pigs or 50 Chicken/poultry or ducks

+ (Column 3) A field must be at least 25 m²

Name of enumerator..... Signature Date.....

Name of supervisor..... Signature Date.....

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National Agriculture Sample Census 2002/03

ACLF: 3 Household listing of 15 selected farmers

Region _____
 District _____
 Ward _____
 Village _____

Code
 Code
 Code
 Code






S/N	Sub village leader number		Name of sub-village leader	Agriculture hh serial number	Name of selected head of household	Number of							
	(1)	(2)				(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
01				<input type="text"/> <input type="text"/> <input type="text"/>									
02				<input type="text"/> <input type="text"/> <input type="text"/>									
03				<input type="text"/> <input type="text"/> <input type="text"/>									
04				<input type="text"/> <input type="text"/> <input type="text"/>									
05				<input type="text"/> <input type="text"/> <input type="text"/>									
06				<input type="text"/> <input type="text"/> <input type="text"/>									
07				<input type="text"/> <input type="text"/> <input type="text"/>									
08				<input type="text"/> <input type="text"/> <input type="text"/>									
09				<input type="text"/> <input type="text"/> <input type="text"/>									
10				<input type="text"/> <input type="text"/> <input type="text"/>									
11				<input type="text"/> <input type="text"/> <input type="text"/>									
12				<input type="text"/> <input type="text"/> <input type="text"/>									
13				<input type="text"/> <input type="text"/> <input type="text"/>									
14				<input type="text"/> <input type="text"/> <input type="text"/>									
15				<input type="text"/> <input type="text"/> <input type="text"/>									

Name of Enumerator: _____ Signature _____ Date _____

Name of Supervisor _____ Signature _____ Date _____

Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development, Ministry of
 Cooperatives and Marketing and the National Bureau of Statistics

United Republic of Tanzania	
ACQ 1	
CONFIDENTIAL	
Small holder/Small Scale Farmer Questionnaire	
Agriculture Sample Census	
2002/2003	
	

Enumerator	Name	Signature																									
	<table border="1" style="margin: auto;"> <tr> <td style="width: 20px; height: 20px;"> </td> <td style="width: 20px; height: 20px;"> </td> <td style="width: 10px; text-align: center;">/</td> <td style="width: 20px; height: 20px;"> </td> <td style="width: 20px; height: 20px;"> </td> <td style="width: 10px; text-align: center;">/</td> <td style="width: 20px; height: 20px;"> </td> <td style="width: 20px; height: 20px;"> </td> </tr> <tr> <td style="text-align: center;">d</td> <td style="text-align: center;">d</td> <td></td> <td style="text-align: center;">m</td> <td style="text-align: center;">m</td> <td></td> <td style="text-align: center;">y</td> <td style="text-align: center;">y</td> </tr> </table>			/			/			d	d		m	m		y	y		<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%;">Hour</td> <td style="width: 50%;">Minutes</td> </tr> <tr> <td style="height: 20px;"> </td> <td style="height: 20px;"> </td> </tr> <tr> <td style="text-align: left;">Start time</td> <td style="text-align: left;">End time</td> </tr> <tr> <td style="height: 20px;"> </td> <td style="height: 20px;"> </td> </tr> </table>	Hour	Minutes			Start time	End time		
		/			/																						
d	d		m	m		y	y																				
Hour	Minutes																										
Start time	End time																										
Field level checking by:			<i>To be completed by the supervisor ONLY after field/farm level checking of the enumeration process. This should be countersigned by the enumerator.</i>																								
District Supervisor:	Name	signature		Date .. / .. / ..																							
Regional Supervisor:	Name	signature		Date .. / .. / ..																							
National Supervisor:	Name	signature		Date .. / .. / ..																							
District checking in Office:			<i>All questionnaires must be checked at the district office.</i>																								
District Supervisor	Name	signature		Date .. / .. / ..																							
For Use at National Level only:			<i>See back page for details of query</i>																								
Data Entered by	Name	signature		Date .. / .. / ..																							
Queried	Name	signature		Date .. / .. / ..																							

Executed by the Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development,
 Ministry of Cooperatives and Marketing
 and
 National Bureau of Statistics

1.0 IDENTIFICATION DETAILS			
1.1 Location			
S/N	Location Name	Codes	
1.1.1	Region	<input type="text"/> <input type="text"/>	
1.1.2	District	<input type="text"/>	
1.1.3	Ward	<input type="text"/> <input type="text"/> <input type="text"/>	
1.1.4	Village	<input type="text"/> <input type="text"/>	
1.2 Details of the respondent and household head			
S/N		Codes	
1.2.1	Name & number of local leader	<input type="text"/> <input type="text"/> <input type="text"/>	
1.2.2	Name & number of household head	<input type="text"/> <input type="text"/>	
1.2.3	Sex of household head (Male = 1, Female = 2)	<input type="text"/> <input type="text"/>	
1.2.4	Name of respondent	<input type="text"/> <input type="text"/>	
1.2.5	Relationship of Respondent to Household Head		
<p>Relationship to household head codes (Q 1.2.5) Head of Household.....1 Son/Daughter3 Grandson/Granddaughter5 Other (friend, employee, etc)...8 Spouse2 Father/Mother4 Other relative.....6</p>			
2.0 ACTIVITIES OF THE HOUSEHOLD			
2.1	Type of Agriculture Household	<input type="text"/>	
<p>Agriculture household codes(Q2.1) Crops only.....1 Livestock only2 Pastoralist.....3 Crops and Livestock4</p>			
2.2	Rank the following livelihood activities/source of income of the household in order of importance		
S/N	Livelihood/source of income activity.	Rank in order of importance 1=most 7=least	How important are each of these activities expressed in percentage.
	(1)	(2)	(3)
2.2.1	Annual Crop farming	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.2	Permanent crop farming	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.3	Livestock keeping/herding	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.4	Off Farm Income	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.5	Remittances	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.6	Fishing/hunting and gathering	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.7	Tree/forest resources (eg honey, firewood, timber,etc)	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
			<input type="text"/> <input type="text"/> <input type="text"/> %

Definition and working page for page 1**General Definitions****Small holder hh/small scale farm:**

Should have between 25sq metres and 20 Hectares under production, and/or between 1 and 50 head of Cattle, and/or between 5 and 100 head of Sheep/Goats/Pigs, and/or between 50 and 1000 chickens/turkeys/ducks/rabbits.

Household: A group of people who occupy the whole or part of one or more housing units and makes joint provisions for food and/or other essentials for living.

Household Head: A person who is acknowledged by all other members of the household either by virtue of his age or standing in the household as the head. He/she should be a permanent resident of the house and he/she is the main person responsible for making decisions.

Agricultural Holding: This is an economic unit of agricultural production under single management. It consists of all livestock kept and all land used for agricultural production without regard to title. For the purpose of this survey, the agricultural holdings are restricted to those which meet one of the following conditions:

- Having or operated at least 25 sq meter of arable land
- Own or keep at least one head of cattle or five goats/sheep/pigs or fifty chicken/ducks/turkeys during the agricultural year 2002/03 (October 2002 to September 2003) .

Question Specific Definitions:**Type of Agriculture Holdings Codes (Q2.1):**

- **Crops only:** A holding is referred to be a crops only holding if it has cultivated a piece of land equal or exceeding 25 sq Meter. This also applies to all households owning or have kept livestock whose number does not qualify such household to be an agricultural holding (No cattle, less than 5 goats/sheep/pigs, less than 50 chickens/turkeys/ducks/rabbits)

- **Livestock only:** A holding is referred to be a Livestock only holding if it has exercised Livestock husbandry only during the agricultural year. The livestock can be herded in search for areas of pasture, but the core household unit always remains in the same place and the herder is rarely away from this place for long periods at a time.

- **Livestock pastoralism:** This refers to a household which practices livestock production as its major income generating activity and a means of subsistence, but moves from one place to another searching for water and pasture for the livestock. This movement usually involves long distances and in many cases the whole household unit moves with the livestock and they have no permanent place of residence.

For both livestock only and pastoralism , the number of livestock has to be at least 1 head of cattle, 5 goats/sheep/pigs or 50 chickens/turkeys/ ducks/rabbits. This also applies to all households owning or have cultivated a piece of land less than 25 sq meter, which does not qualify such household be an agricultural holding.

- **Both crops and livestock:** A holding is referred to be a both crops and livestock if it has cultivated a piece of land equal or exceeding 25 sq meter and if such households is owning or have kept livestock whose number qualify such household be an agricultural holding.

Important livelihood activities/source of income (Q 2.2):

- **Crop farming:** This refers to a household where crop production is its major means of subsistence and income generation.

- **Livestock farming/herding/pastoralism:** This refers to a household where livestock farming/herding is its major means of subsistence & income generation.

- **Off Farm Income** This refers to cash generated from activities other than from the households holding. This can be from permanent employment (eg government/other), temporary employment/labouring and includes cash generated from working on other farmers farms.

-**Remittances:** Assistance from family members who are not currently part of the household, or from a relative or family friend. This assistance is usually in the form of cash but it can also be in-kind (eg food, clothes, building material, farm tools, etc). The money is a gift and is not paid back.

-**Fishing/hunting and gathering** The use of non farmed resources for food eg fishing, hunting wildlife and gathering mushrooms, berries, wild honey roots from uncultivated land.

Procedures for Questions:**Q 2.1 Type of agriculture household/holding**

1. Using the options under the question classify the type of agriculture hh/holding

Note: If the hh had 1 acre of crops and raised 40 chickens during 2002/03 it is classified as '**Crops only**' as the number of chickens do not qualify the hh as keeping livestock.

Q 2.2 Important hh livelihood activities /source of income

1. Read the list in column 1 to the respondent and ask him to rank them in order of importance during the reference year.

2. In column 2 Indicate the importance of each activity by placing '1' against the most important, '2' against the second most important, etc until you reach '7' the least important activity/source of income.

Note: You must attempt to fill in all boxes. Most households will carry out these activities to a greater or lesser degree. You will normally have to probe to get remittances.

If the hh did not undertake an activity during the 2002/2003 agriculture year then mark the appropriate box in column 2 with an 'X'.

3. For each activity/source of income assign a percentage. The enumerator should assist the respondent in assigning the percentage based on the information provided by the farmer.

4. After completing column 3 make sure the percentages add up to 100.

Note: It is not essential to be 100% accurate. This question is just to give the relative importance of the different items in general terms

3.0 HOUSEHOLD INFORMATION

3.1 Give details of personal **particulars** of all household members beginning with the head of the household

S/N	Names of household members	Relation-ship to head	Sex M=1 F=2	Age (if age is above 99 years then write 99)	Survival of Parents		Read & Write	Edu- ca- tion Status	Education Level reached	Invol- vement in farming	Main activity (for aged 5 & above)	Off-farm Income Yes=1 No=2
					Mo- ther	Fa- ther						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
3.1.1	1										
3.1.2											
3.1.3											
3.1.4											
3.1.5											
3.1.6											
3.1.7											
3.1.8											
3.1.9											
3.1.10											
3.1.11											
3.1.12											
3.1.13											
3.1.14											
3.1.15											
3.1.16											

<p>Relation to head (Col 2)</p> <p>Head of household1</p> <p>Spouse2</p> <p>Son/daughter3</p> <p>Father/Mother4</p> <p>Grandson/granddaughter .5</p> <p>Other Relative6</p> <p>Others8</p>	<p>Education Status (Col 8)</p> <p>Attending School1</p> <p>Completed2</p> <p>Never attended School3</p>	<p>Involvement in farming activities (Col 10)</p> <p>Works full time on farm ...1</p> <p>Works part-time on farm 2</p> <p>Rarely works on farm3</p> <p>Never works on farm.....4</p>	<p>Main activity (Col 11)</p> <p>Crop Farming01</p> <p>Livestock Keeping/Herding..02</p> <p>Livestock Pastoralism.....03</p> <p>Fishing04</p> <p>Paid employment:</p> <p>- Government/parastatal05</p> <p>- Private- NGO/mission/etc .06</p> <p>Self employed (non farming)</p> <p>- with employees07</p> <p>- without employees08</p> <p>Unpaid family helper (non agriculture)09</p> <p>Not working & available.....10</p> <p>Not working & unavailable...11</p> <p>Housemaker/housewife12</p> <p>Student13</p> <p>Unable to work /too old/ Retired/sick/disabled).....14</p> <p>Other98</p>																										
<p>Survival of Parents (Col 5 & 6)</p> <p>Yes1</p> <p>No2</p> <p>Don't know3</p>	<p>Education Level Reached (Col 9)</p> <table border="0"> <tr> <th>Primary Education</th> <th>Secondary Education</th> </tr> <tr> <td>Not of school ageNA</td> <td>Form one11</td> </tr> <tr> <td>Under Standard One 00</td> <td>Form two12</td> </tr> <tr> <td>Standard One01</td> <td>Form three13</td> </tr> <tr> <td>Standard Two02</td> <td>Form four14</td> </tr> <tr> <td>Standard Three03</td> <td>Form five15</td> </tr> <tr> <td>Standard Four04</td> <td>Form six16</td> </tr> <tr> <td>Standard Five05</td> <td>Training after Secondary Education17</td> </tr> <tr> <td>Standard Six06</td> <td>University & other tertiary Education18</td> </tr> <tr> <td>Standard Seven07</td> <td>Adult Education19</td> </tr> <tr> <td>Standard Eight08</td> <td>Not applicable99</td> </tr> <tr> <td>Training after Primary Education09</td> <td></td> </tr> <tr> <td>Pre Form One10</td> <td></td> </tr> </table>		Primary Education	Secondary Education	Not of school ageNA	Form one11	Under Standard One 00	Form two12	Standard One01	Form three13	Standard Two02	Form four14	Standard Three03	Form five15	Standard Four04	Form six16	Standard Five05	Training after Secondary Education17	Standard Six06	University & other tertiary Education18	Standard Seven07	Adult Education19	Standard Eight08	Not applicable99	Training after Primary Education09		Pre Form One10		
Primary Education	Secondary Education																												
Not of school ageNA	Form one11																												
Under Standard One 00	Form two12																												
Standard One01	Form three13																												
Standard Two02	Form four14																												
Standard Three03	Form five15																												
Standard Four04	Form six16																												
Standard Five05	Training after Secondary Education17																												
Standard Six06	University & other tertiary Education18																												
Standard Seven07	Adult Education19																												
Standard Eight08	Not applicable99																												
Training after Primary Education09																													
Pre Form One10																													
<p>Read & Write (Col 7)</p> <p>Swahili1</p> <p>English2</p> <p>Swahili & English3</p> <p>Any other language4</p> <p>Don't Read/ Write5</p>																													

Definition and working page for page 2**Question Specific Definitions:****Relation to head (Col 2):**

- **Household Head:** A person who is acknowledged by all other members of the household either by virtue of their age or standing as the household head.

Read and Write (Col 7):

- **Any other language:** Must be a written language.

For someone who can read and write in Swahili and any other language apart from English, the correct code is 1. For one who can read and write in English and any other language apart from Swahili the correct code is 2. Code 4 should only be used for another language but not English or Swahili

Education Level Reached (Col 9):

Indicate the highest level only. For those still attending school fill in the last year reached before the survey period. For example if a hh member is currently in standard 7 this year his highest grade reached is standard 6

Main Activity (Col 11):

- **Crop farming:** The persons main activity is crop production. This can be annual crops, vegetables, permanent crops or tree farming.

- **Livestock farming/herding:** The persons main activity is livestock farming/herding. The livestock can be herded in search for areas of pasture, but the core household unit always remains in the same place and the herder is rarely away from this place for long periods at a time. This category also includes fish farming but not fishing.

- **Livestock pastoralism:** The persons main activity is in moving livestock from one place to another searching for water and pasture for the livestock. This movement usually involves long distances and in many cases the whole household unit moves with the livestock and they may have no permanent place of residence.

- **Paid employment** - In full time employment earning a cash income

- Government/Parastatal - In full time employment for a government Ministry, Department or Board that is controlled by the Government
- Private/NGO/Mission/etc - employed by Non public/government organisation

- **Self employee** - works for own business for cash income

- With employees - Works for own business for cash and employs other workers

- Without employees - Works for own business for cash but does not employ other workers

- **Not working but available to work** - No productive activity but would like to have one.

- **Not working & nor available for work** - No productive activity and does not want to have one.

- **Unable to work** too old, too young, retired, disabled, etc

Off-farm Income (Col 12) - Income made from activities NOT on the HH's farming activities. This can be any off farm income generation activity and includes working for cash on other peoples farms.

Indicate whether each member was involved in an off farm income generating activity during 2002/03

Overview to section 3.0**Section 3.0 - Preliminary note**

1. Make sure that you define the hh properly to ensure that all the members of the hh are included. Make sure you stress that the hh is not just the hh heads direct family and that it includes other people living and eating together with the family.

2. If you notice that his house is large or you see many people around his house and he has only given you small number of hh members enquire further until you are sure that you have captured all the hh members.

Procedures for questions**Section 3.0 - Household Information**

1. For each household member complete columns 1, 2 & 3.

2. After completing columns 1, 2 & 3 for each household member go back to the first household member and complete the remaining columns for that member.

3. Repeat step 2 for the rest of the household members

IMPORTANT NOTE:

Cross check responses in columns 11 and 12 with section 2 especially in relation to:

off-farm income - if a hh member was involved in off farm income then there should be a response in question 2.2.4 and vice versa.

4.0 LAND ACCESS/OWNERSHIP/TENURE			
4.1 Details of area "owned" by the household in the 2002/03 agricultural year. Give area reported by the respondent in "acres".		Area in Acres	
4.1.1	Area Leased/Certificate of ownership	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	4.2 Was all land available to the hh used during 2002/03 (Yes=1, No=2) <input type="checkbox"/>
4.1.2	Area owned under Customary Law	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
4.1.3	Area Bought from others	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	4.3 Do you consider that you have sufficient land for the hh (Yes=1, No=2) <input type="checkbox"/>
4.1.4	Area Rented from others	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
4.1.5	Area Borrowed from others	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	4.4 Do any female members of the hh own or have customary right to land (Yes=1, No=2) <input type="checkbox"/>
4.1.6	Area Share -cropped from others	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
4.1.7	Area under Other forms of tenure	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
Total area		<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	

5.0 LAND USE			
5.1 Area operated by household under different forms of land use during 2002/03 agriculture year. Give area reported by the respondent in "acres".		Area in Acres	
			Calculation area
5.1.1	Area under Temporary Mono-crops	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.2	Area under Temporary Mixed crops (eg Maize & beans)	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.3	Area under Permanent Mono-crops	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.4	Area under Permanent Mixed crops (eg bananas, coffee & trees)	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.5	Area under Permanent/temporary mix (eg bananas & maize)	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.6	Area under Pasture	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.7	Area under Fallow	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.8	Area under Natural Bush	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.9	Area under Planted Trees	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.10	Area Rented to others	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.11	Area Unusable	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
5.1.12	Area of Uncultivated Usable land (excluding fallow)	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	
Total area		<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/> <input type="text"/>	

6.0 ACCESS AND USE OF RESOURCES

6.1 In the following table indicate the distance to the different fields used by the household

S/N	Field Number	Distance (in kilometres) from field to:			Distance codes less than 100m1 between 2 and 3km6 between 100 and 300m ..2 between 3 and 5km7 between 300 and 500m ..3 between 5 and 10 km ..8 between 500 and 1km....4 Over 10 km9 between 1 and 2km5
		Homestead	Nearest road	Nearest Market	
6.1.1	1	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.1.2	2	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.1.3	3	<input type="text"/>	<input type="text"/>	<input type="text"/>	

6.2 In the following table indicate the distance and use of the following communal resources

S/N	Communal Resource	Distance to resource (km)		Main hh use	Instructions for distance to resource (Col 2 and 3): If under 1km, write 0 If above 1km round to whole numbers eg 1.5km= 2km, 1.25km= 1km
		dry season	wet season		
	(1)	(2)	(3)	(4)	
6.2.1	Water for humans	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	Main hh use (Col 4) Home or farm Consumption/utilisation.....1 Sold to Neighbours.....2 Sold to trader on the farm.....3 Sold to village market4 Sold to local wholesale market.....5 Sold to major wholesale market6 Not used by household.....7 Not available8
6.2.2	Water for livestock	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	
6.2.3	Communal Grazing	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	
6.2.4	Communal Firewood	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	
6.2.5	Wood for Charcoal	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	
6.2.6	Building poles	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	
6.2.7	Forest for bees (honey)	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	
6.2.8	Hunting (animal products)	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	
6.2.9	Fishing (Fish)	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	

7.4 Main use of Secondary Products

7.5 Did you use Secondary Products from any of your crops during the 2002/03 year. (Yes=1, No=2) []
If the response is 'NO' go to section 8.0

7.6 List the main crops with secondary products and provide the following details:

Table with 10 columns: S/N, Crop name, Crop Code, Secondary product, Prod code, Used for, Unit, Total no of Units, No of units sold, Total value of sold units (Tsh.). Rows 7.6.1 to 7.6.6.

Main product (Col 4), Mainly used for (Col 5), Unit (Col 6). Lists various categories and sub-categories with corresponding codes.

8.0 AGROPROCESSING AND BY-PRODUCTS

8.1 Did the household process any of the products harvested on the farm during 2002/03 (Yes=1, No=2) []
If the response is 'NO' go to section 9.0

8.2 List the main crops processed and provide the following details:

Table with 14 columns: S/N, Crop name, Crop Code, Proc-ess-ed, Main Prod-uct code, Used for, Unit, Quantity of main product, Quantity Sold, Whe-re sold, By-Prod-uct code, Used for, Unit, Quantity of by-product, Quantity Sold. Rows 8.2.1 to 8.2.6.

Processed (Col 3), Main product code (Col 4), Used for (Col 5 & 11), Where sold (Col 9), By-product code (Col 10). Lists various categories and sub-categories with corresponding codes.

9.0 CROP STORAGE							
9.1	Did the household store any crops during the 2002/03 agriculture year? (Yes =1, No=2) <input style="float:right;" type="checkbox"/>						
<i>If the response is 'NO' go to section 10.0</i>							
9.2 For each of the listed crops provide the following details on storage							
S/N	Crop Name	Stor	Current	Method	Normal	Main	Estimate
		-ed	Quantity	of	duration	pur	Estimate
		Y=1	Stored	Storage	of	pose	Storage
		No=2	(kg)		storage	loss	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
9.2.1	Maize	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.2	Paddy	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.3	Sorghum/Millet	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.4	Beans, peas, etc	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.5	Wheat	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.6	Coffee	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.7	Cashewnut	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.8	Tobacco	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.9	Cotton	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.10	Groundnuts/bambara	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Main method of Storage (Col 4)

In locally made traditional structure..1
 In Improved locally made structure .2
 In modern store3
 In Sacks/open drum.....4
 In airtight drum5
 Unprotected pile6
 Other8

Duration of Storage (Col 5)

Less than 3 months1
 Between 3 and 6 months2
 Over 6 months3

Main purpose of storage (Col 6)

Food for the household1
 To sell for higher price2
 seed for planting.....3
 Other8

Storage loss (Col 67)

Little or no loss1
 Up to 1/4 loss2
 Between 1/4and 1/2 loss ..3
 Over 1/2 loss4

10.0 MARKETING							
10.1	Did the household **sell any crops** from the 2002/03 agriculture year? (Yes=1, No=2)						
(If the response is 'YES' or 'NO' go to section 10.2)							
10.2 For **each of the following crops** what was the main **marketing problem** faced by the household during 02/03							

	Crop	Main problem		Crop	Main problem
	(1)	(2)		(1)	(2)
10.2.1	Maize	<input type="checkbox"/>	10.2.9	Vegetables	<input type="checkbox"/>
10.2.2	Rice	<input type="checkbox"/>	10.2.10	Tree Fruits	<input type="checkbox"/>
10.2.3	Sorghum/millet	<input type="checkbox"/>	10.2.11	Cashewnut	<input type="checkbox"/>
10.2.4	Wheat	<input type="checkbox"/>	10.2.12	Cotton	<input type="checkbox"/>
10.2.5	Beans, peas etc	<input type="checkbox"/>	10.2.13	Tobacco	<input type="checkbox"/>
10.2.6	Cassava	<input type="checkbox"/>	10.2.14	Groundnuts/bamabara	<input type="checkbox"/>
10.2.7	Bananas	<input type="checkbox"/>	10.2.15	Trees/timber/poles	<input type="checkbox"/>
10.2.8	Coffee	<input type="checkbox"/>	10.2.16	Fish	<input type="checkbox"/>

10.3 From the list of marketing problems below, for all produce rank the five most important problems

	1	2
10.3.1	Biggest problem	<input type="checkbox"/>
10.3.2	2nd problem	<input type="checkbox"/>
10.3.3	3rd problem	<input type="checkbox"/>
10.3.4	4th problem	<input type="checkbox"/>
10.3.5	5th problem	<input type="checkbox"/>

Market problems (Q10.2 & 10.3 (Col 2))

Open market price too low01 Market too far05 Government Regulatory board problems...09
 No transport02 Farmer association problems06 Lack of market Information10
 Transport cost too high03 Cooperative Problems07 Other (specify)98
 No buyer04 Trade Union problems08 Not Applicable99

| 10.4 | What was the main **reason for not selling** crops during 2002/03 year | | | | | | |

Reason for not selling crops (Q10.4)

Price too low1 Farmer association problems4 Government regulatory board problems7
 Production insufficient to sell.....2 Cooperative Problems.....5 Other (specify)8
 Market too far3 Trade Union problems6 Not Applicable9

Definition and working page for page 8

Question Specific definitions (Section 9.0)

Crop Storage, Section 9

Method of Storage (column 4)

- **Locally made structure:** The structures that have been inherited from their fore fathers
- **Improved locally made structure:** Traditional structures that have been improved using modern technology.
- **Normal duration of storage:** Often there are stored stocks from different seasons and different years. The normal duration refers to the number of months that the most of the crop is stored for.

Marketing problems Q 10.2 and 10.3 col 2:

- **Farmer Association:** A village or community based group of farmers who have formed an organisation to purchase inputs/sell/store their products in order to achieve a better price for their products.
- **Cooperative Union:** Large inter-village /community organisation set up on a district/regional or national basis for providing inputs, marketing and storing farmers products.
- **Government Regulatory board:** Government control body for setting prices and controlling quality of certain agriculture commodities.

Procedures for Questions

Q 9.2 Details of Crop Storage:

1. For the crops listed indicate if the household stored any during 2002/03 in column 2.
2. Check that the crops correspond to the crop lists in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments
3. For the listed crops give details of storage.

Q 10.2 Details on Crop Marketing:

1. For each of the crops listed indicate the main problems in marketing during 2002/03 in column 2.
2. Check if the crops correspond to the crop lists list in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments

Q 10.3 Ranking of market problems:

Rank in order of importance the 5 most important marketing problems from the codes in the Market Problems code box.

Working Area/calculation space

11.0 ON-FARM INVESTMENT									
11.1 Does the household practice irrigation (Yes=1, No=2) <input style="float:right" type="checkbox"/>									
<i>If the response is 'NO' go to section 11.3</i>									
S/N	Source of Irrigation water	Method of obtaining water	Method of application	Irrigatable area (acres)	Area of irrigated land this year (acres)				
	(1)	(2)	(3)	(4)	(5)				
11.1.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> . <input type="text"/>				
Source of irrigation water (Col 1) River1 Borehole5 Lake2 Canal6 Dam3 Tap Water7 Well4			Method of obtaining water (Col 2) Gravity1 motor pump4 Hand bucket2 Other8 Hand pump3		Method of application (Col 3) Flood1 Sprinkler2 water hose.....3 Bucket/watering can4				
11.2 Does the household have any erosion control/water harvesting facilities on their land (Yes=1, No=2) <input style="float:right" type="checkbox"/>									
<i>If the response is 'NO' go to section 12.0</i>									
S/N	Type of erosion control/water harvesting structure	Number of structures	Year of construction		Type of erosion control/water harvesting structure	Number of structures	Year of construction		
	(1)	(2)	(3)		(1)	(2)	(3)		
11.2.1	Terraces	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	→	11.2.5	Tree belts	<input type="text"/> <input type="text"/>		
11.2.2	Erosion control bunds	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>		11.2.6	Water harvesting bunds	<input type="text"/> <input type="text"/>		
11.2.3	Gabions/Sandbags	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>		11.2.7	Drainage ditches	<input type="text"/> <input type="text"/>		
11.2.4	Vetiver Grass	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>		11.2.8	Dam	<input type="text"/> <input type="text"/>		
12.0 ACCESS TO FARM INPUTS AND IMPLEMENTS									
12.1 Give details of farm inputs used during the 2002/03 agriculture year									
S/N	Input name	Used Yes=1 No=2	Source	Distance to Source	Source of Finance	Reason for not using	Quality of Input	Plan to use next year Yes =1,No=2	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
12.1.1	Chemical Fertiliser	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.2	Farm Yard Manure	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.3	Compost	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.4	Pesticide/fungicide	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.5	Herbicide	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.6	Improved Seeds	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.7	Other	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Source (Col 3) Cooperative01 Local farmers group02 Local market/Trade Store ...03 Secondary Market04 Development project05 Crop buyers06 Large scale farm07 Locally produced by hh08 Neighbour09 Other (specify)98 Not applicable99		Distance to source (Col 4) Less than 1 Km1 Between 1 and 3km2 between 3 and 10 km...3 Between 10 and 20 km ...4 20km and above5 not applicable9		Source of finance (Col 5) Sale of farm products .1 Other income generating activities ...2 Remittances3 Bank Loan/Credit.....4 produced on farm5 Other8 Not applicable9		Reason for not using (Col 6) Not available1 Price too high2 No money to buy3 Too much labour required..4 Do not know how to use....5 Input is of no use6 Locally produced by hh7 Other8 Not applicable9		Quality of input (Col 7) Excellent1 Good2 Average3 Poor4 Does not work .5 not applicable...9	

Definition and working page for page 9

Overview of Investment activities (Section 11.0)

Investment activities:

Investment activities refer to medium to long term farm development structures and projects. This can be Irrigation structures, erosion and water harvesting structures or other permanent or semi-permanent investment made on the land that the household owns.

Question Specific Definitions (Q 11.1)

Source of irrigation Water (Col 1): The main source of water from which water is obtained for irrigation.

Method of obtaining water (Col 2): The mechanism by which the water is extracted from the source,

Application Method (Col 3): How the water is applied on the field.
 - Flood - is the application of water down the slope of the land by means of gravity
 - Sprinkler - is the application of pressurised water through pipes. The water passes through a device which sprays the water onto the crop from above.

Irrigatable Area (Col 4): The area the irrigation system is designed to cover in acres.

Area of irrigated land this year (Col 5): Area of land under irrigation during the 2002/03 agric year. This is the physical area and NOT the cumulative area of 2 or more croppings.

Q 11.1 Irrigation

1. If the hh practices irrigation give details on the main source, main method of obtaining and applying water.
2. Cross check column 8, Q 7.1.2, 7.2.2 & 7.3.2 to check if irrigation was used on any crops.

Question Specific Definitions (Q 11.3)

Erosion control/water harvesting structure (Col 1)

Terraces: Are structures constructed on the side of a hill to provide a level ground to plant crops. They are often used to trap water for paddy/lowland rice production.

Erosion Control Bunds: These are banks of earth/stones built perpendicular to the slope to slow down water and prevent erosion. They are different to Terraces in that the soil behind the banks are not level.

Gabions: A gabion is a wire mesh box filled with rocks/stones and used to control or prevent gully erosion

Sandbags Used to prevent or control gully erosion

Tree belts/Wind breaks: A band of trees planted perpendicular to the prevailing wind whose main purpose is to slow down wind speed

Water Harvesting bunds: A bank of earth constructed horizontal to the slope of the land to trap water. They are usually banana shaped.

Dam: A bank of earth/material which traps river water to form a catchment of water behind it.

Q 11.3 erosion control/water harvesting

1. Number of structures refers to the number of working/maintained structures and does not include derelict or irreparable structures.
2. Year of construction refers to the year that the structures were first constructed. It is not the year that the structures were last maintained.

Farm Inputs (Q 12.1.1 to 12.1.7)

Farm yard Manure: An organic fertiliser made on farm composed of animal dung.

Compost: An organic fertiliser made on farm from decomposed plant material

Pesticide: Chemical used to either protect the plant from or kill insects, birds, molluscs, mites, etc attacking the plant

Fungicide: is a chemical that is used to protect the plant from or control a fungal disease.

Herbicide: A chemical used to control weeds.

Q 12.0 Farm Inputs

1. Indicate in column 1 whether each of the inputs are used or not.
2. Complete cols 3, 4, 6, and 7 for inputs that are used and place '9' in column 5 (for not applicable).
3. Complete cols 5 & 7 for inputs not used.

NOTE: Cross check column 6, 7, 8 & 9, Q 7.1.2, 7.2.2 & 7.3.2 to check what inputs were used.

12.2 Give details of farm implements and assets used and owned by the household during 2002/03 agriculture year									
S/N	Equipment/Asset Name	Number		Used in 2002/03 Yes 1, No=2	Source of Equip-ment	Source of Fin-ance	Reason for not using	Plan to use next year Yes=1, No=2	
		Owned	rent-ed						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
12.2.1	Hand Hoe	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
12.2.2	Hand Powered Sprayer	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
12.2.3	Oxen	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
12.2.4	Ox Plough	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
12.2.5	Ox Seed Planter	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
12.2.6	Ox Cart	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
12.2.7	Tractor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
12.2.8	Tractor Plough	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
12.2.9	Tractor Harrow	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
12.2.10	Shellers/threshers	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
		Source of equipment (Col 5) Neighbour.....1 Development project5 Cooperative2 Government6 Local farmers association.....3 Large scale farm7 market/Trade store4 Other (specify)8			Source of finance (Col 6) Sale of farm products1 Other income generating activities .2 Remittances3 Bank Loan4 Credit5 Other8 Not applicable9		Reason for not using (Col 7) Not available1 Price too high2 No money to buy/rent.....3 Too much labour required...4 Equipment/Asset of no use ...5 Other8 Not applicable9		
13.0 USE OF CREDIT FOR AGRICULTURE PURPOSES									
13.1	During the year 2002/03 did any of the hh members borrow money for agriculture (Yes = 1, No = 2) <i>(if the response is 'NO' go to section 13.3)</i>							<input type="text"/>	
13.2 Give details of the credit obtained during the agricultural year 2002/03 <i>(if the credit was provided in kind , for example by the provision of inputs, then estimate the value in 13.2.9)</i>									
	use codes to indicate source	Source "a"		Source "b"		Source "c"			
	Provided to Male = 1, Female 2	<input type="text"/>		<input type="text"/>		<input type="text"/>			
		tick the boxes below to indicate the use of the credit		tick the boxes below to indicate the use of the credit		tick the boxes below to indicate the use of credit			
13.2.1	Labour	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.2	Seeds	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.3	Fertilisers	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.4	Agrochemicals	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.5	Tools/equipment	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.6	Irrigation structures	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.7	Livestock	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.8	Other	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.9	Value of Credit (Tsh.)	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.10	Value of repayment (Tsh.)	<input type="text"/>		<input type="text"/>		<input type="text"/>			
13.2.11	Period of repayment (months)	<input type="text"/>		<input type="text"/>		<input type="text"/>			
Source of credit (Q 13.2-a, b and c) Family, friend or relative...1 Commercial Bank.....2 Cooperative3 Savings & credit Soc4 Trader/trade store5 Private individual6 Religious Organisation/NGO/Project ...7 Other (Specify).....8									
13.3	If the answer to question 13.1 above is 'NO' what is the reason for not using Credit?							<input type="text"/>	
Reason for not using credit (Q13.3) Not needed ...1 Not available ...2 Did not want to go into debt....3 Interest rate/cost too high.....4 Did not know how to get credit....5 Difficult bureaucratic procedure ...6 Credit granted too late ...7 Other (specify) ...8 Dont know about credit9									

Definition and working page for page 10

Question Specific Definitions (Q 12.2)

Farm Implements (Col 1):

Hand powered Sprayer: Knapsack or bicycle pump sprayer

Reason for not using (Col 6): Be careful about using "too much labour required" as this code generally refers to hand hoes only. The codes for this should "**NOT**" be read out to the farmer as a prompt.

Note: If remittance is given as the main source of finance check for a response to remittances in **question 2.2.5**

Question Specific Definitions (Q 13.0)

Section 13.0 Credit for Agriculture Purposes

Credit is defined as finance in the form of cash or in-kind contributions (eg direct provision of inputs, machinery, livestock or other material) for the purpose of crop and livestock production whereby the value of the credit must be paid back to the borrower. The value of repayment may either be with interest or interest free.

Credit may be paid back in the form of cash or agriculture produce.

Section 13.0 Credit for Agriculture Purposes

Value of credit: is the amount in cash received from the borrower. If the credit was paid in-kind, estimate the value of this.

Value of repayment: This is the amount to be repaid to the borrower and includes the principal amount (value of credit) plus any interest repayment. If the credit is paid back in agriculture produce, then the cash value of this must be estimated.

Period of repayment: This is the time in **months** the borrower has given for full repayment.

Procedures for questions

Q 12.0 Farm Inputs

1. Indicate in column 2 and 3 whether each of the implements were used or not.
2. Complete cols 4, 5, 6, and 8 for inputs that are used and place '9' in column 7 (for not applicable).
3. Complete cols 7 & 8 for inputs not used.

Section 13.2 Source of agriculture credit

If the farmer obtained credit from more than one source then use the columns "a", "b" and "c" for the different sources of credit. Start with the main source of credit in column "a".

NOTE: Check for use of inputs in column 7, 8 & 9 of questions 7.1.2, 7.2.2 & 7.3.2.

Working Area/calculation space

14.0 TREE FARMING/AGROFORESTRY										
14.1	Did your household have any Planted Trees on your land during 2002/03 agric year? (Yes =1, No=2)									<input type="checkbox"/>
<i>If the response is 'NO' go to section 14.3</i>										
14.2 Give details of the planted trees you have on your land.										
S/N	Tree Code	Number of trees	Where planted	Main Use	Secondary Use	Number of Plank trees Sold	Number of Pole trees Sold	hh utilised		Total Value (Tsh.)
								Number of Poles	Number of Timber	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
14.2.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.2.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.2.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.2.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Where Planted (Col 3)						Use (Col 4 & 5)				
Mostly on field/plot boundaries.....1						Planks/Timber.....1 Shade5				
Mostly scattered in fields2						Poles2 Medicinal.....6				
Mostly in plantation/coppice ...3						Charcoal3 Other8				
						Fuel wood4				
14.3	Does your village have a Community tree planting scheme (Yes=1, No=2)									<input type="checkbox"/>
<i>If the response is 'NO' go to section 15.0</i>										
14.4 Household involvement in community tree planting scheme										
S/N	Distance to community planted forest (Km)	hh Involve-ment	Main purpose	Main use during 2002/03						
	(1)	(2)	(3)	(4)						
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
HH involvement (Col 2)			Main Purpose (Col 3)			Main Use during 02/03(Col 4)				
Only planting1			Erosion control.....1 Environment rehabilitation ...4			Poles1 Not ready to use5				
Only protection and thinning.....2			Production of poles2 Restoration of wildlife5			Timber logs2 Not allowed to use6				
Only cutting3			production of firewood...3 Other (specify)8			Charcoal3 Other (specify)8				
Most or all activities.....4						Firewood4				

15.0 CROP EXTENSION SERVICES							
15.1	Did your household receive extension advice for crop production during 2002/03 (Yes=1,No=2)						<input type="checkbox"/>
<i>If the response is 'NO' go to section 16.0</i>							
S/N	Extension Provider	Source of extension (Y=1,N=2)	If you pay for extension, what is the cost/yr	Contact farmer /group member (Yes=1,No=2)	No. of visits by extension agency per year	No. of message adopted in the last 3 years	Quality of Service
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
15.1.1	Government extension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.1.2	NGO/development project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.1.3	Cooperative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.1.4	Large Scale farmer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.1.5	Other.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality of service (Col 7)							
Very good1 good2 Average.....3 Poor.....4 No Good5							

Definition and working page for page 11

General Definitions for section 14.0

Tree Farming/Agroforestry

This section refers to trees **planted** for wood (firewood, poles, planks, carving, charcoal, medicinal, etc, but **NOT** fruit trees). It does **not** include naturally growing trees on the farm (unless special care has been given to promote their establishment) or trees growing naturally on the communal areas.

Tree farming is the planting of trees on an area of land for which the main purpose is the production and regeneration of trees for wood on that land.

Agroforestry: is the planting of trees on land for the purpose of complementing other farming activities like crop and animal production. For the purpose of this questionnaire Agroforestry trees are trees planted on boundaries and scattered throughout fields. The main productive unit in this case is Crops and Livestock.

Section 14.2 Details of planted trees

1. Enter the tree codes of the main species grown by the hh
2. If no planks or poles are sold enter a "0" in columns 8, & 9.
3. Total value includes both value of hh utilised trees and sold trees.
4. If no trees were utilised by the hh or sold enter "0" in column 10

Question Specific Definitions

Tree farming (Section 14.0)

Pole trees (Col 6): These are young trees which have a maximum diameter of 6 inches at the bottom and are often used for house construction. They are often the thinning harvest after 3 - 5 years.

Plank trees (Col 7): Trees for sawing into timber planks.

Animal shade: Trees grown for the purpose of providing shade to animals.

Community tree planting scheme (Section 14.3)

Community Forest: A forest planted on the communal land which is planted, replanted or spot planted by the members of the village.

Crop Extension Services (Section 15.1)

Contact Farmer: A farmer who is used by the extension agent as a focal point to demonstrate new interventions. The contact farmer then passes on the message to other farmers

Group member: Member of a group under which the contact farmer leads

Adoption: This is the uptake of an intervention for 2 or more years

Section 15.1 Crop Extension Services

1. For each of the extension providers ask if the hh received extension during 2002/2003 agriculture year and indicate in column 2.
2. For each of the providers complete the rest of the columns

Tree Name Guide Col 1

Code	Local Name	Botanical Name	English Name
01		Senna siamea	Cassod tree
02	Msongoma	Gravellia	Silver oak
03	Mbarika	Azelia quanzensis	Pod mahogany
04	Mkeshia	Acacia spp	Umbrella thorn
05	Msindano	Pinus spp	Pine
06	Mkaratusi	Eucalyptus spp	Red River Gum
07		Cyprus spp	Cyprus tree
08	Mtndoo	Calophyllum inophyllum	
09	Mvule	Melicia excelsa	Iroko
10	Mvinji	Casurina equisetifolia	Whistling oak
11	Msaji	Tectona grandis	Teak
12	Mkungu wa kienyeji	Terminalia catapa	Sea almond
13	Mkungu india	Terminilia ivorensis	Black afara
14	Muhumula	Maesopsis berchemoides	
15			

Code	Local Name	Botanical Name	English Name
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

15.2 Crop Extension Messages									
S/N	Extension Message	Received Advice	Adopted	Source of	S/N	Extension Message	Received Advice	Adopted	Source of
		Yes=1 No=2	Yes=1 No=2	Crop Extension			Yes=1 No=2	Yes=1 No=2	Crop Extension
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
15.2.1	Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.9	Crop Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.2	Use of agrochemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.10	Vermin control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.3	Erosion control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.11	Agro-processing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.4	Organic fertiliser use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.12	Agro-forestry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.5	Inorganic fertiliser use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.13	Bee Keeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.6	Use of improved seed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.14	Fish Farming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.7	Mechanisation/LST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.15	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.8	Irrigation Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

Source of extension (Col 4)
Government1 NGO/Dev project ...2 Cooperative ...3 Large scale farmer4 Other (Specify) ...8 Not applicable9

16.0 LIVELIHOOD CONSTRAINTS

From the list of constraints on the right select:						List of constraints	
16.1 the 5 most important problems			16.2 the 5 least important problems			1. Access to Land 2. Ownership of Land 3. Poor farm Inputs 4. Soil Fertility 5. Access to improved seed 6. Irrigation facilities 7. Access to chemical Inputs 8. Cost of Inputs 9. Extension Services 10. Access to forest resources 11. Hunting and Gathering 12. Access to potable water 13. Access to credit 14. Harvesting 15. Threshing 16. Storage 17. Processing 18. Market Information 19. Transport costs 20. Distruction by animals 21. Stealing 22. Pests and Diseases 23. Local government taxation 24. Access to off Farm Income	
Order of most importance	Constraint		Order of least importance	Constraint			
(1)	(2)		(1)	(2)			
16.1.1	most important	<input type="checkbox"/>	16.2.1	Least important	<input type="checkbox"/>		
16.1.2	2nd most important	<input type="checkbox"/>	16.2.2	2nd least important	<input type="checkbox"/>		
16.1.3	3rd most important	<input type="checkbox"/>	16.2.3	3rd least important	<input type="checkbox"/>		
16.1.4	4th most important	<input type="checkbox"/>	16.2.4	4th least important	<input type="checkbox"/>		
16.1.5	5th most important	<input type="checkbox"/>	16.2.5	5th least important	<input type="checkbox"/>		
17.0 ANIMAL CONTRIBUTION TO CROP PRODUCTION							
17.1 Did you use Draft animals to cultivate your land during 02/03 (Yes=1, No=2)				17.2 Did you apply organic fertiliser during 02/03 (Yes=1, No=2)			
(If no, go to question 17.2)				(If no, go to question 18)			
S/N	Type of Draft	Number owned	Number used	Area cultivated (acres)			
	(1)	(2)	(3)	(4)			
17.1.1	Oxen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
17.1.2	Bulls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
17.1.3	Cows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
17.1.4	Donkeys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
S/N	Type of organic Fertiliser	Area applied (acres)					
	(1)	(2)					
17.2.1	FYM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
17.2.2	Compost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

Definitions and working page for page 12

Question Specific Definitions

Crop Extension Advice (Section 15.2)

Mechanisation/LST: LST means Labour Saving Technology

Section 16.0 Livelihood constraints

16.1 List the five most important problems in order of most importance:

1. Read out the list of constraints to the respondent and ask him to select the ones that are a problem. Place a ✓ against the constraints that are a problem.
2. Read the selected constraints and ask the farmer to select 5 which create the largest problems
3. Ask the farmer to list these in order of importance and enter in column 2

16.2 List the five least important problems in order of least importance:

1. Read out the list of constraints to the respondent and ask him to select the ones that are **NOT** a problem. Place an ✗ against the constraints that are **NOT** a problem.
2. Read the selected constraints and ask the farmer to select 5 which create the least problems
3. Ask the farmer to list these in order of least importance and enter in column 2

Definitions and working page for page 13**General definitions for page 13**

Cattle Intake during 2002/03: Cattle purchased, given or born which increases the number of cattle in the herd.

Cattle Offtake during 2002/03:

Cattle removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 18.0)**Cattle type (Q 18.2 & 18.4, Col 1)**

Bull: Mature **Uncastrated** male cattle used for breeding

Cow: Mature female cattle that has given birth at least once

Steer: Castrated male cattle over 1 year

Heifer: Female cattle of 1 year up to the first calving

Calves: Young cattle under 1 year of age

Average Value per Head (Q 18.3, (Col 7 & 9) & 18.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Cattle vaccination (18.5 col 1)

ECF: East Coast Fever

FMD: Foot and Mouth Disease

CBPP: Contagious Bovine Pleura Pneumonia

Section 18.0 Cattle Population, Intake & Offtake.

NOTE: Section 18.1 is for the current population (as of 1st October 2003);
Section 18.2 and 18.3 is for movement in and out of the herd
during the 2002/03 agriculture year.
Section 18.4 is for diseases encountered during the agriculture year.

1. If the household has cows, you would normally expect them to have calves in column 8

2. If calves are reported in column 2, 3, or 4 (18.2.6, 18.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of cattle the importance of this must be reflected in Q 2.2.3

Section 18.5 If cattle are reported to have died in Column 5 then at least that number should be reported in 18.4 col 4

Working area for page 13

Definitions and working page for page 14**Goat definitions for page 14**

Goat Intake during 2002/03: Goat purchased, given or born which increases the number of goats in the herd.

Goat Offtake during 2002/03:

Goat removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 19.0)**Goat type (Q 19.2 & 19.4, Col 1)**

Billy Goat (he-goat): Mature **Uncastrated** male goat used for breeding

Castrated goat: Male goat that has been castrated.

She Goat: Mature female goat over 9 months of age

Kid: Young goat under 9 months of age.

Average Value per Head (Q 19.3, (Col 7 & 9) & 19.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Goat vaccination (19.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

LSD: Lumpy Skin Disease

Section 19.0 Goat Population, Intake & Offtake.

NOTE: Section 19.1 is for the current population (as of 1st October 2003); Section 19.2 and 18.3 is for movement in and out of the herd during the 2002/03 agriculture year. Section 19.4 is for diseases encountered during the agriculture year.

1. If the household has she goats, you would normally expect them to have kids in column 8
2. If kids are reported in column 2, 3, or 4 (19.2.6, 19.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of goats the importance of this must be reflected in Q 2.2.3

Section 19.5 If goats are reported to have died in Column 5 then at least that number should be reported in 19.4 col 4

Working area for page 14

20.0 SHEEP POPULATION, INTAKE AND OFFTAKE															
20.1 Did the household own, raise or manage any SHEEP during the 2002/03 agriculture year? (Yes =1 No =2)											<input type="checkbox"/>				
(If no go to section 21.0)															
20.2 Sheep Population as of 1st October 2003						20.3 Sheep Intake during 2002/2003									
S/N	Sheep type	Number of Indigenous	Number of Improved			Total	S/N	Number Purchased	Number given /obtained	Number Born	Total Intake of Sheep	Average Value per head			
			for Mutton	Dairy									(5)	(6)	(7)
		(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)			
20.2.1	Ram	<input type="text"/>	<input type="text"/>	X	X	X	<input type="text"/>	<input type="text"/>	X	X	X	<input type="text"/>			
20.2.2	Castrated Sheep	<input type="text"/>	<input type="text"/>	X	X	X	<input type="text"/>	<input type="text"/>	X	X	X	<input type="text"/>			
20.2.3	She Sheep	<input type="text"/>	<input type="text"/>	X	X	X	<input type="text"/>	<input type="text"/>	X	X	X	<input type="text"/>			
20.2.4	Male lamb	<input type="text"/>	<input type="text"/>	X	X	X	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
20.2.5	She lamb	<input type="text"/>	<input type="text"/>	X	X	X	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
Grand Total						<input type="text"/>	<input type="text"/>								
20.4 Sheep Offtake during 2002/2003								20.5 Sheep diseases							
S/N	Sheep type	Number Sold/traded	Number consumed by hh	Number given away/stolen	Number died	Total Sheep Offtake	Average value per head	S/N	Disease/parasite	Number Infected	Number Treated	No. Rec-oved	Number Died	Last vaccinated	Main Source
20.4.1	Ram	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>								
20.4.2	Castrated Sheep	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	20.5.1	Foot Rot	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	X	X
20.4.3	She Sheep	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	20.5.2	CC PP	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
20.4.4	Male lamb	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	20.5.3	Helminthiosis	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	X	X
20.4.5	She lamb	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	20.5.4	Trypa nsomiasis	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total Offtake						<input type="text"/>	20.5.5				FMD	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
												Last Vaccinated (Col 6) 20031 20004 20022 before 20005 20013 Not Vaccinated...6			
												Main Source of vaccine (Col 7) Private Vet Clinic ..1 Other8 District Vet Clinic ..2 Not applicable9 NGO/Project.....3			

Definitions and working page for page 15**Sheep definitions for page 15**

Sheep Intake during 2002/03: Sheep purchased, given or born which increases the number of Sheep in the herd.

Sheep Offtake during 2002/03:
Sheep removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 20.0)**Sheep type (Q 20.2 & 20.4, Col 1)**

Ram: Mature **Uncastrated** male goat used for breeding

Castrated sheep: Male sheep that has been castrated.

Ewe: Mature female sheep over 9 months of age

Lamb: Young sheep under 9 months of age.

Average Value per Head (Q 20.3, (Col 7 & 9) & 20.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Sheep vaccination (20.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

Section 20.0 Sheep Population, Intake & Offtake.

NOTE: Section 20.1 is for the current population (as of 1st October 2003);
Section 20.2 and 20.3 is for movement in and out of the herd during the 2002/03 agriculture year.
Section 20.4 is for diseases encountered during the agriculture year.

1. If the household has ewes, you would normally expect them to have kids in column 8
2. If lambs are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of Sheep the importance of this must be reflected in Q 2.2.3

Section 20.5 If Sheep are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 15

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21.0 PIG POPULATION AND PRODUCTION																																												
21.1 Did the household own, raise or manage any PIGS during the 2002/03 agriculture year (Yes =1 No =2) <input type="checkbox"/>																																												
21.2 PIG Population as of 1 st October 2003											21.3 Pig increase during 2002/2003																																	
S/N	Pig type <i>(1)</i>	Number <i>(2)</i>								S/N	Number Purchased <i>(3)</i>	Number given /obtained <i>(4)</i>	Number Born <i>(5)</i>	Total Pig Increase <i>(9)</i>	Average Value per head <i>(10)</i>																													
21.2.1	Boar	<input type="text"/>								21.3.1	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	<input type="text"/>																													
21.2.2	Castrated male	<input type="text"/>								21.3.2	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	<input type="text"/>																													
21.2.3	Sow/Gilt	<input type="text"/>								21.3.3	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	<input type="text"/>																													
21.2.4	Male piglet	<input type="text"/>								21.3.4	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>																													
21.2.5	She piglet	<input type="text"/>								21.3.5	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>																													
Grand Total		<input type="text"/>																																										
21.4 Pig decrease during 2002/2003											21.5 Pig diseases/pests/conditions																																	
S/N	Pig type <i>(1)</i>	Number Sold/traded <i>(2)</i>	Number consumed by hh <i>(3)</i>	Number given away/stolen <i>(4)</i>	Number died <i>(5)</i>	Total Pig Offtake <i>(6)</i>	Average value per head <i>(7)</i>	S/N	Disease/parasite <i>(1)</i>	Number Infected <i>(2)</i>	Number Treated <i>(3)</i>	No. Rec-overed <i>(4)</i>	Number Died <i>(5)</i>	Last vacci-nated <i>(6)</i>	Main Sou-rce <i>(7)</i>																													
21.4.1	Boar	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<i>(1)</i>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>																													
21.4.2	Castrated male	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	21.5.1	Anthrax	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>																													
21.4.3	Sow/Gilt	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	21.5.2	ASF	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>																													
21.4.4	Male piglet	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	21.5.3	Anemia	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	X	X																													
21.4.5	She piglet	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	21.5.4	Helmenthiosis	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	X	X																													
Total Offtake							<input type="text"/>																																					
22.0 LIVESTOCK PEST & PARASITE CONTROL																																												
22.1 Did you deworm your animals during 2002/03 (Yes=1, No=2) <input type="checkbox"/>											22.3 Do you normally encounter a tick problem (Yes=1,No=2) <input type="checkbox"/>																																	
<i>(If the response is 'NO' go to section 22.3)</i>											<i>(If the response is 'NO' go to section 22.5)</i>																																	
22.2 Which animals did you deworm ? (Tick appropriate boxes) Cattle <input type="checkbox"/> Goats <input type="checkbox"/> Sheep <input type="checkbox"/> Pigs <input type="checkbox"/>											22.4 Which methods of tick control did you use <input type="checkbox"/>																																	
											Control method (Q 22.4) None..1 Spraying ..2 Dipping..3 Smearing ..4 Other.8																																	
22.5 Do you normally encounter a tsetse fly problem (Y=1,N=2) <input type="checkbox"/>											22.6 Which methods of control did you use <input type="checkbox"/>																																	
<i>(If the response is 'NO' go to section 23.0)</i>											Control method (Q22.6) None .1 Spray .2 Dipping .3 Trapping .4 Other .8																																	
<table border="0" style="width:100%;"> <tr> <td colspan="11"></td> <td colspan="4" style="background-color: #ffffcc;"> <u>Last Vaccinated (Col 6)</u> 2003 ..1 20004 2002 ..2 before 20005 2001 ...3 Not Vaccinated.6 </td> </tr> <tr> <td colspan="11"></td> <td colspan="4" style="background-color: #ffffcc;"> <u>Main Source (Col 7)</u> Private Vet Clinic ..1 District Vet Clinic ..2 NGO/Project.....3 Other8 Not applicable9 </td> </tr> </table>																										<u>Last Vaccinated (Col 6)</u> 2003 ..1 20004 2002 ..2 before 20005 2001 ...3 Not Vaccinated.6															<u>Main Source (Col 7)</u> Private Vet Clinic ..1 District Vet Clinic ..2 NGO/Project.....3 Other8 Not applicable9			
											<u>Last Vaccinated (Col 6)</u> 2003 ..1 20004 2002 ..2 before 20005 2001 ...3 Not Vaccinated.6																																	
											<u>Main Source (Col 7)</u> Private Vet Clinic ..1 District Vet Clinic ..2 NGO/Project.....3 Other8 Not applicable9																																	

Definitions and working page for page 16**Pigs definitions for page 16**

Pig Intake during 2002/03: Pigs purchased, given or born which increases the number of Pigs in the production unit.

Pig Offtake during 2002/03:

Pigs removed from the production unit, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 21.0)**Pigs type (Q 21.2 & 21.4, Col 1)**

Boar: Mature **Uncastrated** male pig used for breeding

Castrated Pig: Male pig that has been castrated.

Sow: Mature female pig that has given birth to at least one litter of pigs.

Gilt: Female pig of 9 months up to the first farrowing.

Piglet: Young pig under 3 months of age.

Average Value per Head (Q 21.3, (Col 7 & 9) & 21.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Pig vaccination (21.5 col 1)

ASF: African Swine Fever

Section 21.0 Pig Population, Intake & Offtake.

NOTE: Section 21.1 is for the current population (as of 1st October 2003); Section 21.2 and 21.3 is for movement in and out of the herd during the 2002/03 agriculture year. Section 21.4 is for diseases encountered during the agriculture year.

1. If the household has sows, you would normally expect them to have piglets in column 8
2. If piglets are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of Pigs the importance of this must be reflected in Q 2.2.3

Section 20.5 If Pigs are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 16

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Definition and working page for page 17

Question Specific Definitions Section 26.0)

Procedures for questions

Section 23.0 - Other Livestock:

1. The current number includes both adult and young animals. For example The number of chickens in col 1 would include adults and chicks.

Question Specific Definitions Section 27.0)

Access to functional Livestock Structures/accessories (Section 27.0):

NOTE: The structures must be functional. If they are not working/derelect then they should not be included. The distance to the next nearest functional structure should be taken.

Spray Race: A fixed spray structure on an animal race for spraying acaricide

Cattle crush: Corridor structure for restraining cattle.

Abattoir: Large building designed for slaughtering a large amount of animals. It normally has complex structures to assist in the slaughter and storage and a high level of hygiene is maintained.

Slaughter Slab: Concrete slab designed for slaughtering a small amount of animals

Hides: obtained from Cattle

Skins: Obtained from sheep and goats

Hide/Skin Shed: Shed for curing/tanning animal skins and hides

Village holding Pen: Enclosure for containing large amount of livestock which is owned communally.

Drencher: Device for orally administering medicine to livestock. If no product was sold in 2002 enter "0" in columns 6, 7 & 9.

Section 26.0 - Outlets for livestock:

Using the codes enter the outlets for the sale of different livestock in order of importance. If there are, for example, only 2 outlets mark the rest with a "X".

Definitions and working page for page 18**General definitions for Section 28.0**

Fish farming: Refers to the rearing/production of fish. It is different to fishing in that the fish have to be reared and fed in fish farming. Fishing traps or captures naturally occurring fish in rivers, lakes and the sea and should not be included in this section.

Question Specific Definitions (Section 28.2)

Production unit number (Col 1): A production unit is a pond river/lake which is treated as a separate entity for the production of fish eg it may be by virtue of manageable size, maturity of fish, type of fish etc. Eg a farmer may have 3 fish ponds. (each one is a separate production unit).

Frequency of stocking (Col 5): What is the number of times the farmer puts new fingerlings into the pond each year.

Fingerlings: These are young immature fish used for stocking ponds.

Sold: (Col 10 & 11)

If no fish were sold enter "0" in column 10 and 11)

Livestock Extension Services (Section 29.1)

Adopted (Col 3): This is the uptake of an intervention for 2 or more years

Livestock Extension Service providers (Section 29.2)

Contact Farmer: A farmer who is used by the extension services as a focal point to demonstrate new interventions to. The contact farmer then passes on the message to other farmers

Adopted (Col 5): This is the uptake of an intervention for 2 or more years

Working area for page 18

Definition and working page for page 19**Question specific definitions (Section 31.1)****Activity (Col 1):**

Land Clearing: Refers to removing trees/bush/grass prior to ploughing

Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc).

Cattle Rearing: Tending to cattle at home, eg assisting with births, castration, etc. Different livestock keeping activity to herding.

Cattle Herding: Moving livestock from place to place for grazing and water. If herding is carried out the respondent must also give a response to rearing/husbandry

Question Specific Definitions (Section 32.0.0)**Activity (Col 1):**

Subsistence: For the family's survival, rather than for the generation of cash. This includes feeding the hh, provision of water and fuel for cooking. The source of these products are usually from the land resources available to the family. Remember that not all cash earnings are for non subsistence purposes/activities as cash can be used to purchase subsistence items eg food.

Non -subsistence: Cash used for items and activities which are not crucial for the survival of the family. This includes modern medication, non working clothes, refined beer, school fees, etc.

Procedures for (Section 31.1)**Section 31.1 ((Labour use)**

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.
2. After completing column 2 return to the first activity in row 27.1.1 and complete column 3.
3. Make sure you stress MAINLY responsible.

NOTE: If an activity has been mentioned previously in the questionnaire eg that the hh keeps chickens, make sure a response is obtained in the appropriate place ie poultry keeping.

If off-farm income generation is mentioned, check for responses to off farm income in other parts of the questionnaire

Section 32.0 - Subsistence vs Non-subsistence

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.
2. After completing column 2 return to the first activity in row 32.1.1 and complete column 3 & 4. For each activity make an assessment of the percentage used for subsistence survival and the percent converted to cash for non subsistence goods and items.
3. Make sure you stress MAINLY responsible.

NOTE: Cross check the responses with previous sections in the questionnaire. eg if a response is given to remittances check for an entry in question 2.2.5

34.0 HOUSEHOLD FACILITIES																														
34.1	House Construction	34.2 Household assets																												
<p>For the main dwelling, what are the main building materials used in the construction of the following</p> <p>34.1.1: Roof <input type="checkbox"/> 34.1.2 Number of rooms <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Roof Material</p> <p>Iron Sheets.....1 Tiles2 Concrete3 Asbestos4 Grass/leaves.....5 Grass & mud.....6 Other (Specify) 8</p> </div>		<p>Does your household own the following?</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 5%;"></th> <th style="width: 85%;">Asset</th> <th style="width: 10%;">Y=1 N=2</th> </tr> <tr><td>34.2.</td><td>Radio/cassette, music system)</td><td><input type="checkbox"/></td></tr> <tr><td>34.2.</td><td>Telephone (landline)</td><td><input type="checkbox"/></td></tr> <tr><td>34.2.</td><td>Telephone (mobile)</td><td><input type="checkbox"/></td></tr> <tr><td>34.2.</td><td>Iron</td><td><input type="checkbox"/></td></tr> <tr><td>34.2.</td><td>Wheelbarrow</td><td><input type="checkbox"/></td></tr> <tr><td>34.2.</td><td>Bicycle</td><td><input type="checkbox"/></td></tr> <tr><td>34.2.</td><td>Vehicle</td><td><input type="checkbox"/></td></tr> <tr><td>34.2.</td><td>Television</td><td><input type="checkbox"/></td></tr> </table>			Asset	Y=1 N=2	34.2.	Radio/cassette, music system)	<input type="checkbox"/>	34.2.	Telephone (landline)	<input type="checkbox"/>	34.2.	Telephone (mobile)	<input type="checkbox"/>	34.2.	Iron	<input type="checkbox"/>	34.2.	Wheelbarrow	<input type="checkbox"/>	34.2.	Bicycle	<input type="checkbox"/>	34.2.	Vehicle	<input type="checkbox"/>	34.2.	Television	<input type="checkbox"/>
	Asset	Y=1 N=2																												
34.2.	Radio/cassette, music system)	<input type="checkbox"/>																												
34.2.	Telephone (landline)	<input type="checkbox"/>																												
34.2.	Telephone (mobile)	<input type="checkbox"/>																												
34.2.	Iron	<input type="checkbox"/>																												
34.2.	Wheelbarrow	<input type="checkbox"/>																												
34.2.	Bicycle	<input type="checkbox"/>																												
34.2.	Vehicle	<input type="checkbox"/>																												
34.2.	Television	<input type="checkbox"/>																												
34.3	Energy use by the Household	34.4 Access to drinking water																												
<p>Energy use and access by the household</p> <p style="text-align: center;">Main Source of energy for</p> <p>34.3.1 Lighting <input type="checkbox"/> 34.3.2 Cooking <input type="checkbox"/></p> <div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 48%;"> <p>Lighting energy</p> <p>Mains electricity.....01 Solar02 Gas (biogas)03 Hurricane Lamp04 Pressure Lamp05 Wick Lamp06 Candles07 Firewood08 Other (specify) 98</p> </div> <div style="border: 1px solid black; padding: 5px; width: 48%;"> <p>Cooking energy</p> <p>Mains electricity.....01 Solar02 Gas (hh biogas)03 Bottled gas04 Paraffin/kerocine.....05 Charcoal06 Firewood07 Crop Residues08 Livestock dung09 Other (specify)98</p> </div> </div>		<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Season</th> <th style="width: 20%;">Main source of drinking water</th> <th style="width: 15%;">Distance to source (in km)</th> <th style="width: 50%;">Time to and from source (Hour : minute)</th> </tr> <tr> <th>(1)</th> <th>(2)</th> <th>(3)</th> <th>(4)</th> </tr> </thead> <tbody> <tr> <td>34.4. Wet Season</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/> · <input type="checkbox"/></td> <td><input type="checkbox"/> : <input type="checkbox"/></td> </tr> <tr> <td>34.4. Dry Season</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/> · <input type="checkbox"/></td> <td><input type="checkbox"/> : <input type="checkbox"/></td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Main Source of drinking water</p> <p>Piped water01 Covered rainwater catchment ...07 Protected well02 Uncovered rainwater catchment 08 Protected/covered spring ... 03 Water Vendor09 Unprotected Well 04 Tanker truck10 Unprotected spring 05 Bottled water11 Surface water (lake/dam/river/stream)06 Other (Specify)98</p> </div>		Season	Main source of drinking water	Distance to source (in km)	Time to and from source (Hour : minute)	(1)	(2)	(3)	(4)	34.4. Wet Season	<input type="checkbox"/>	<input type="checkbox"/> · <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>	34.4. Dry Season	<input type="checkbox"/>	<input type="checkbox"/> · <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>											
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34.5	Access to toilet facilities	34.6 Food consumption patterns																												
<p>34.5.1 What type of toilet does your hh use <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px;"> <p>Type of toilet</p> <p>No toilet/bush.....1 Improved pit latrine - hh owned.....4 Flush toilet2 Other type (specify)5 Pit latrine - traditional ..3</p> </div>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">34.6.</td> <td style="width: 70%;">Number of meals the hh normally has per day</td> <td style="width: 15%;"><input type="checkbox"/></td> </tr> <tr> <td>34.6.</td> <td>Number of days hh consumed meat last w</td> <td><input type="checkbox"/>k</td> </tr> <tr> <td>34.6.</td> <td>How often did the hh have problems in satisfying the food needs of the hh last year?</td> <td><input type="checkbox"/></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Problems satisfying hh food needs (row 34.6.3)</p> <p>Never1 Seldom2 Sometimes3 Often4 Always5</p> </div>		34.6.	Number of meals the hh normally has per day	<input type="checkbox"/>	34.6.	Number of days hh consumed meat last w	<input type="checkbox"/> k	34.6.	How often did the hh have problems in satisfying the food needs of the hh last year?	<input type="checkbox"/>																		
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34.7	Source of Household income																													
<p>34.7.1 What is the households main source of cash income? <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px;"> <p>Source of Income codes</p> <p>Sale of food crops01 Wages or salaries in cash07 Sale of Livestock.....02 Other casual cash earnings ..08 Sale of livestock products ...03 Cash remittances09 Sale of cash crops.....04 Fishing10 Sale of forest products05 Other98 Business income.....06 Not applicable99</p> </div>																														

Definition and working page for page 20**Household facilities (Section 34):****Number of rooms used for sleeping in the household (Q 34.1)**

Include sitting room, dining room, kitchen, etc if used for sleeping. It also includes rooms outside the main dwelling

A room is defined as a space which is separate from the rest of the building by a permanent wall or division. A building/house that is not divided into rooms is considered to have one room.

Household assets (Q 34.2): these assets must be functioning. Do not include if broken.

Access to drinking water (Q 34.4): If there is more than one source, use the one, which the hh uses most frequently.

Main source of hh cash income:

Activity that provides the hh with the most cash during 2002/03 agriculture year.

Average/maximum yields

Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop

Crop Name	kg/ha		kg/acre		Crop Name	kg/ha		kg/acre	
	Average	Max	Average	Max		Average	Max	Average	Max
11 Maize	1200	6250	486	2530	86 Cabbage			0	0
12 Paddy	700	4000	283	1619	87 Tomatoes			0	0
13 Sorghum	750	3500	304	1417	88 Spinach			0	0
14 Bulrush Millet	350	3000	142	1215	89 Carrot			0	0
15 Finger Millet	300	2500	121	1012	90 Chillies			0	0
16 Wheat	1200	4500	486	1822	91 Amaranths			0	0
17 Barley	1400	2300	567	931	92 Pumpkins			0	0
21 Cassava	3000	7000	1215	2834	93 Cucumber			0	0
22 Sweet Potato	600	8000	243	3239	94 Egg Plant			0	0
23 Irish potatoes	750	8500	304	3441	95 Water Mellon			0	0
24 Yams	4000	10000	1619	4049	96 Cauliflower			0	0
25 Cocoyams	2500	5000	1012	2024	52 Sisal	800	25000	324	10121
26 Onions			0	0	54 Coffee	500	100	202	40
27 Ginger			0	0	55 Tea	2500	10000	1012	4049
31 Beans	400	1300	162	526	56 Cacao	200	1000	81	405
32 Cowpeas	300	1750	121	709	57 Rubber	400	1400	162	567
33 Green gram			0	0	58 Wattle			0	0
34 Pigeon pea	600	2000	243	810	59 Kapok			0	0
35 Chick peas	500	1500	202	607	60 Sugar Cane	60000	150000	24291	60729
36 Bambara nut	600	4000	243	1619	61 Cardamom			0	0
41 Sunflower	600	1700	243	688	71 Banana	10000	50000	4049	20243
42 Simsim	300	1000	121	405	72 Avocado			0	0
43 Groundnut	600	4000	243	1619	73 Mangoes	10000	25000	4049	10121
47 Soyabeans	1300	2500	526	1012	74 Papaw	50000	70000	20243	28340
48 Caster seed	300	750	121	304	76 Orange	20000	40000	8097	16194
75 Pineapple	25000	60000	10121	24291	77 Grape fruit	30000	50000	12146	20243
50 Cotton	300	1500	121	607	78 Grapes	5000	30000	2024	12146
51 Tobacco	500	2000	202	810	79 Mandarin/tange	20000	40000	8097	16194
53 Pyrethrum			0	0	80 Guava	7000	35000	2834	14170
62 Jute	800	3500	324	1417	81 Plums			0	0
44 Palm Oil	1200	5000	486	2024	82 Apples			0	0
45 Coconut	2000	8000	810	3239	83 Pears			0	0
46 Cashewnut	9	60/tree	4	24	84 Pitches			0	0

